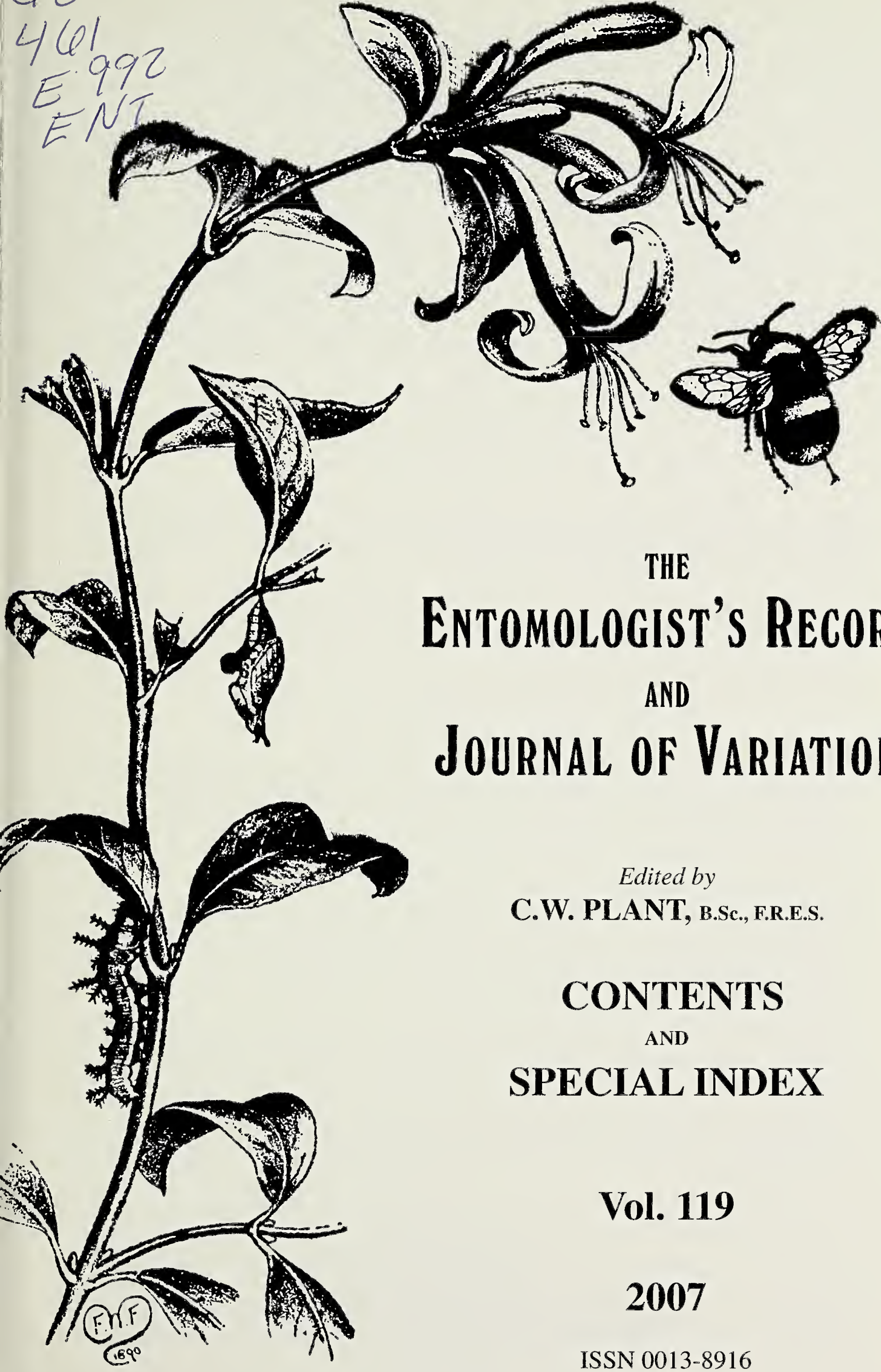

THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

Edited by
C.W. PLANT, B.Sc., F.R.E.S.

CONTENTS AND SPECIAL INDEX

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Compiled by Catherine Wellings

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COLEOPTERA

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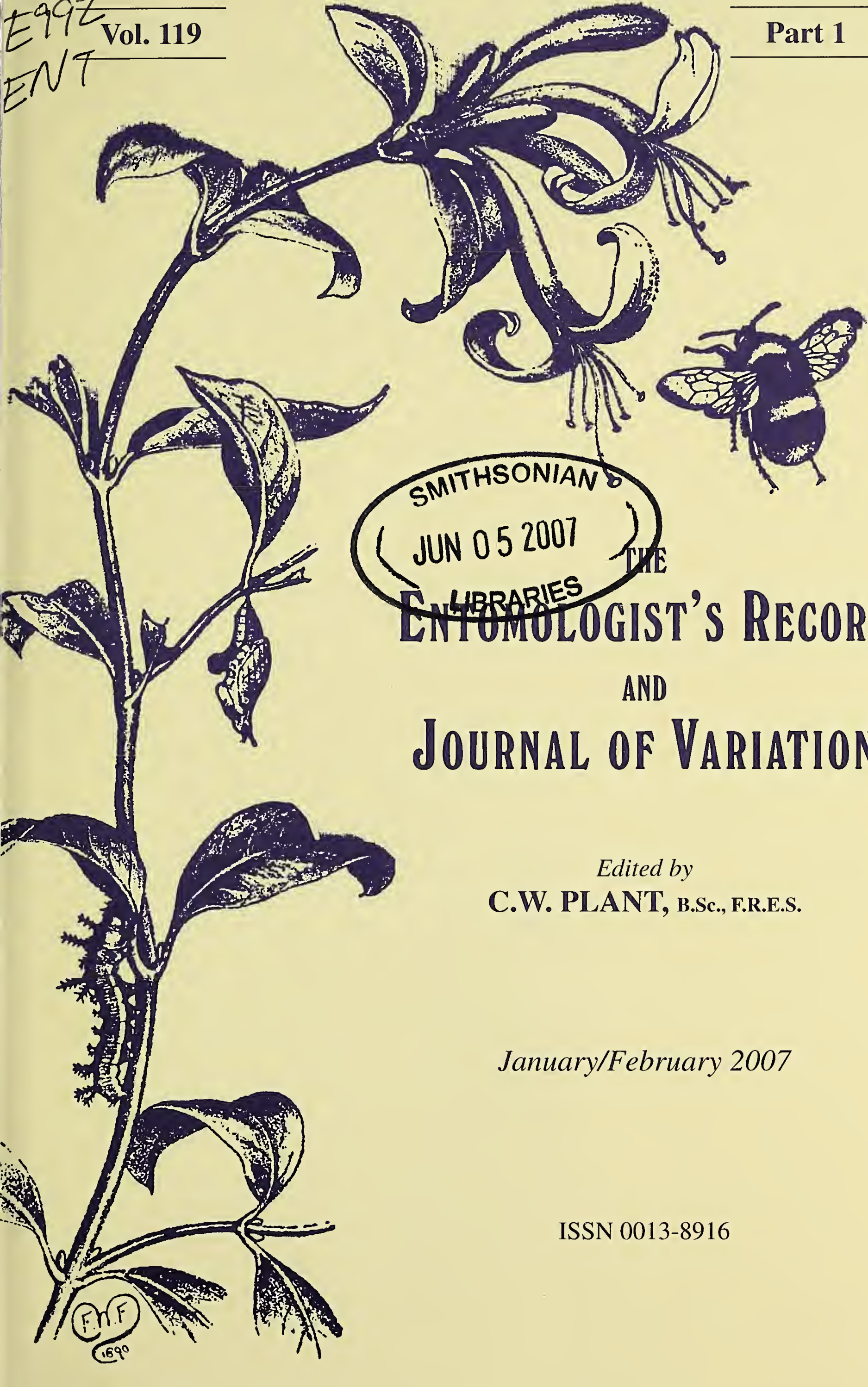

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THE IMMIGRATION OF LEPIDOPTERA TO THE BRITISH ISLES IN 2003

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Abstract

Formally accepted records of immigrant Lepidoptera occurring in the British Isles during the year 2003 are listed and discussed. For less frequently encountered species full information is given; for the immigrants recorded most commonly in 2003, a selection and analysis of the available records is presented.

Introduction

Writing this at the end of the phenomenal 2006 season, its easy to lose sight of what an incredible year 2003 was for immigrant Lepidoptera. Species such as *Agrius convolvuli* (L.), *Spodoptera exigua* (Hb.) and *Heliothis armigera* (Hb.) occurred in record numbers, far in excess of anything that had gone before. Adult totals for all the commoner nocturnal immigrants are given in Annex 1, and these surpass 2500 *A. convolvuli*, 5000 *S. exigua* and 1000 *H. armigera*. Given the previous record totals for these species of 500 *A. convolvuli* (1945), 1200 *S. exigua* (1962) and 80+ *H. armigera* (1988 & 1992), it can be seen what an unprecedented year for insect immigration 2003 was. Furthermore, the *A. convolvuli* total does not take account of the large numbers of larvae that were such a feature of the late summer/early autumn period in many areas.

The year's total of at least 44 *Diasemiopsis ramburialis* (Dup.) was also the highest annual total, the previous record total of 18 having occurred as recently as 2002.

The totals given for *Nomophila noctuella* (D. & S.) and *Macroglossum stellatarum* (L.) in Annex 1 probably represent the 'tip of the iceberg' as diurnal sightings of both species became so commonplace during the 2003 season that casual records of both species were seldom reported and numerical estimates at many coastal sites were not even attempted. Whilst it proved difficult to quantify the total recorded numbers of these two species, the bare minimum figures given at least provide an idea of the scale of their arrivals. Without doubt, the high frequency and wide distribution of records of these species was another striking feature of the year; it is probable that the numbers of both species were the highest ever recorded for either species in a single year. Cetainly the available data on *M. stellatarum* shows the numbers recorded clearly surpassed the 4000 recorded in 1947.

Needless to say, good numbers of many other immigrant species were recorded during the 2003 season. These included particularly significant arrivals of species such as *Euchromius ocellea* (Haw.), *Palpita vitrealis* (Rossi), *Papilio machaon* (L.), *Vanessa cardui* (L.), *Rhodometra sacraria* (L.), *Hyles livornica* (Esp.) and *Trichoplusia ni* (Hb.); with the records of *R. sacraria* and *T. ni* in particular approaching record proportions. The extent of some of the immigrant activity was

exhibited by reports of immigrants from the length and breadth of Great Britain, and emphasised by the first record of *H. livornica* from the Faeroe Islands on 5 August.

With only single previous records of *Noctua janthina* (D. & S.) and *Platyperigea kadenii* (Frey.), a significant upsurge in records of both these species occurred in 2003, whilst there were no fewer than twelve examples of *Lacanobia splendens* (Hb.), the first of this species in Britain. Two other rare immigrants that had their record season in 2003 were *Proxenus hospes* (Frey.) and *Heliothis nubigera* (H.-S.), with their respective totals of six and five examples in 2003 at least doubling the total number of British records of both species.

The most significant additional immigrant species recorded in 2003 included the fourth British record of *Ancylolomia tentaculella* (Hb.), the first British record of *Ancylosis cinnamomella* (Dup.), the second modern British record of *Dendrolimus pini* (L.), the first British record of *Cyclophora ruficiliaria* (H.-S.), the first modern British record of *Gluphisia crenata* (Esp.), the second and third British records of *Actinotia hyperici* (D. & S.) and the fifth British record of *Nycteola asiatica* (Krul.).

There were again some interesting records of probable adventive species and the records of *Opogona sacchari* (Bojer), *Blastobasis phycidella* (Zell.), *Thaumatotibia leucotreta* (Meyrick), *Maruca vitrata* (Fabr.), *Zerynthia polyxena* (D. & S.), *Saturnia pyri* (D. & S.), *Actias luna* (L.) and *Antichloris eriphia* (Fabr.) were noteworthy but almost certainly all the result of accidental importation. However, a number of records of possible adventive species occurred 'at large' and were of a more indeterminate origin, these including the records of *Metalampra italica* Bald., *Dichelia histrionana* (Frölich), *Euzophera osseatella* (Treits.), *Euzophera bigella* (Zell.), *Spodoptera littoralis* (Boisd.) and *Earias vittella* (Fabr.); the records of first two species listed being the first in Britain.

There was a generally slow start to the 2003 season with immigration virtually non-existent during the winter and early spring months, with the most notable exception being three *E. ocellea* in VC9 in late March. Activity picked up somewhat during May with the first significant arrivals of commoner immigrant species and the first wave of *S. exigua* records late in the month across southern Britain. The only significant rarity of the spring period was the first of two records of *A. hyperici* from the same VC25 locality, on 6 May.

Levels of immigration increased during the first half of June and significant arrivals occurred in coastal localities from mid-month onwards. These included the main primary immigrations of both *H. livornica* and *S. exigua*, the highest single night counts occurring for both species during this period and the late summer records that followed likely to involve, in part, progeny of the June immigrants. Particularly concentrated periods of immigration were evident in southern Britain around the 15 & 26 June and weather charts for these dates are shown below (Figures 1 & 2). Whilst neither chart appears to show strong southerly jetstreams, the proximity of warm, calm conditions on the continent is evident with weak depressions over the continental land-mass pushing warm air into southern Britain.

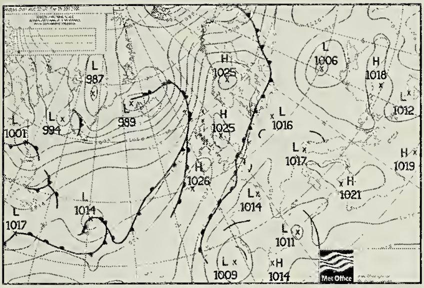

Figure 1. Weather system charts for 15.vi.03.

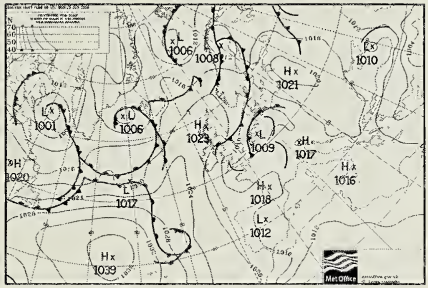

Figure 2. Weather system charts for 26.vi.03.

Rarities recorded during June included the year's second record of *A. hyperici*; the first *G. crenata* in Britain for over 150 years; the migrant plume *Oxyptilus laetus* (Zell.); the first four British records of *L. splendens*; four records of *H. nubigera*; three *Hyles euphorbiae* (L.) in the last week of the month; and the second British records of both *N. janthina* and *P. kadenii*.

Nocturnal immigration was at a slightly lower level during July although some exceptional counts of *V. cardui* were made during the month. An arrival of immigrant *P. machaon* peaked in late July, continuing into the first half of August. Records of nocturnal rarities continued throughout July, the most significant of these including all the year's five records of *Trachea atriplicis* (L.), five of the year's six records of *Nola aerugula* (Hb.), the first British record of *C. ruficiliaria*, the fourth British record of *A. tentaculella*, the fifth British record of *N. asiatica*, the fifth example of *H. nubigera* of the year, more records of *N. janthina*, *L. splendens* and *P. kadenii* and single records of *Haimbachia cicatricella* (Hb.), *Psammotis pulveralis* (Hb.), *Sclerocona acutellus* (Eversm.), *Drepana curvatula* (Borkh.), *Lymantria dispar* (L.), *Cryphia raptricula* (D. & S.) and *Acontia lucida* (Hufn.).

The predominant southerly influence to the weather conditions, that continued throughout much of the summer, was exemplified by the occurrence of a Migratory Locust *Locusta migratoria* at Woodingdean, near Brighton (VC14) on 31 July (Booth Museum of Natural History via CRP).

Immigration continued throughout August, although a prevalence of warm, weather conditions and southerly airstreams particularly characterised the first half of August and immigrant activity was at a consistently high level during this period. High counts of *V. cardui* continued to be made in early August, whilst all three of the year's *Agrotis crassa* (Hb.) occurred early in the month. Rarities that arrived during the first half of August included the first British record of *A. cinnamomella*, the second modern record of *D. pini*, the first record of *D. curvatula* from south-west England, the second records of the year of *L. dispar*, *C. raptricula* and *A. lucida* and single examples of *P. hospes*, *Thysanoplusia orichalcea* (Fabr.) and *Pechipogo plumigeralis* (Hb.).

Unprecedented numbers of *S. exigua* were recorded widely throughout August and into September and, although a proportion of these were likely to have been locally bred, the occurrence of numbers at coastal sites in association with other immigrant species suggested further arrivals continued throughout the summer.

Of relevance were the three examples of the Large Cone-head Bush-cricket *Rusopilia nitidula* that occurred in VC1 on St Mary's, Isles of Scilly on 21 August (R. Hathaway, P. Stancliffe) and St Agnes, Isles of Scilly on the same date (2) (M. Hicks). This orthopteran had only previously been recorded as an importation in Britain, but these records were thought to relate to primary immigrants, probably having arrived a few days previously.

After the rather quiet late August period, immigrant records increased markedly in volume during September, with the peak counts of both *N. noctuella* and *A. convolvuli* recorded during the month. Further concentrated periods of immigration were evident around 5 & 18 September, particularly along the mid-south coast, and weather charts for these dates are shown below (Figures 3 & 4). These show the more active autumn weather systems tracking to the north of Britain and a pronounced continental influence still in effect across southern Britain.

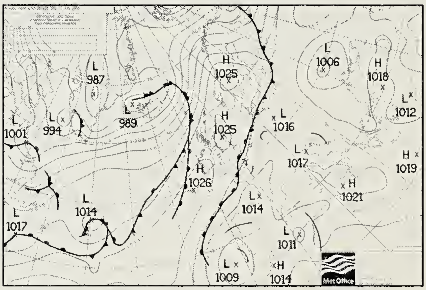

Figure 3. Weather system charts for 5.ix.03.

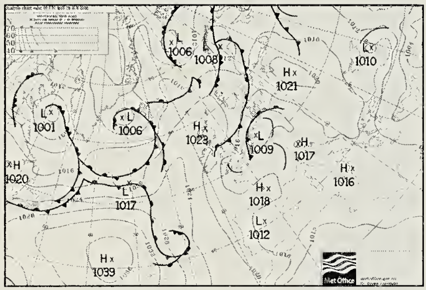

Figure 4. Weather system charts for 18.ix.03.

Rare immigrant species recorded in September included four more *P. hospes*, four more *P. kadenii*, the third *A. lucida* of the year, the only three records of the year of *Utetheisa pulchella* (L.), the only immigrant example of 2003 of *Xylena exsoleta* (L.) and the year's only *Catocala fraxini* (L.).

October saw an inevitable reduction in the overall volume of recorded immigrant species, although high numbers of certain species were still very much in evidence, particularly in the south-west where *Rhodometra sacraria* (L.), *Mythimna unipuncta* (Haw.) and *Mythimna loreyi* (Dup.) peaked in numbers during the month. The scarcer immigrant species recorded during October included the only two *Trigonophora flammea* (Esp.) of the year, the second records of *T. orichalcea* and *P. plumigeralis*, two more examples of *P. kadenii* and the season's only records of *Ochropleura leucogaster* (Frey.) and *Vanessa virginiensis* (Drury).

Mild conditions in November and December allowed good numbers of immigrant species to continue to be recorded to the end of the year, particularly in the south-west. November saw the only three records of the year of *Conistra erythrocephala* (D. & S.), and the third *T. orichalcea* of the season. The occurrence of a single *E. ocellea* and four *Hyles livornica* around the Christmas period was a nice surprise for the relevant recorder on the Isles of Scilly.

Guidelines for contributors

To avoid unnecessary delays in publishing future reports, it would help us greatly if contributors could adhere to the following guidelines: Data should include the vice-county, recorder, stage (if not an adult), number observed, and the date. For light-trap records list the date the trap was switched on, not the date it was inspected. This is a universally accepted convention to avoid the possible duplication of records. During the course of collating this report, it was often the case that a single-date discrepancy was encountered for nocturnal records within different sourced versions of the same record. In almost all such cases (unless the first date was clearly stated to be an error) the earlier date has been given in the following account, as it was assumed the later date referred to the day the light-trap was examined. However, it is likely that some errors have been unavoidable due to this inconsistency in recording data, and it would be helpful if recorders routinely used the earlier date for future records, particularly when they are submitted or published.

There remains a noticeable shortage of records from more northern, inland sites submitted for the current report. Records of migrant species from such sites would be gratefully received for future reports, and the new categories of listed records for commoner immigrant species have been introduced to take account of records of this nature.

It should also be noted that in response to the increasing volume of records now received and sourced, there is another increase in the number of species summarised in Annex 2. However, in this report, statistics relating to the total number and distribution of all records received/sourced of these species have been included, so please continue to submit records of all the Annex 2 species. This increased list is, in part, due to the large volume of immigrant records reported in 2003 and it is possible some of these species will revert to Annex 1 in leaner migrant seasons. It must also be stressed that it has become impossible to monitor the growing number of e-mail/website migrant forums, and the posting of records on such sites will not necessarily result in their inclusion in future reports. It is therefore essential that migrant records are submitted to the relevant county recorder, published within the entomological press or sent directly to the report authors.

Recent reports have been extended to include the more interesting records of adventives as these often help to establish the origin of other records or colonisations of the relevant species. Records of this nature are therefore also welcome for inclusion in future reports.

County recorders, or those submitting large volumes of data are asked to sort their data by vice-county, species name, and then by date order. Finally, contributions are particularly welcome in electronic format (MS Word or Excel etc.) to the following e-mail address: trapsite@ukonline.co.uk. Paper copies may also be submitted by post to either author.

The following abbreviations have been reduced in number and amended to clarify their meaning. The categorisation of listed species has also been amended in many cases, both to reflect this and recent changes in status. They also no longer include any variation in status found on the Channel Islands (VC 113).

Abbreviations

[I] - Primary immigrant or the direct progeny of a primary immigrant. Where this is the only category given, believed to relate to a species that is unable to maintain a viable, self-sustaining resident population through a typical British winter.
[In] – Introduction or importation. A species artificially introduced into Britain by man. Can include synanthropic species that are only able to sustain breeding populations in Britain under conditions that do not occur naturally.
[MC] – Migrant Colonist. An immigrant species that has established extant, short-term breeding populations in Britain, but these believed to have been present for fewer than ten consecutive years.
[R] – Resident. A species with an established breeding population in Britain, this having been present for a minimum of ten successive years.
[FR] – Former Resident. A species that was formerly an established resident but has no known resident populations in Britain at the time of writing.
[V] – Vagrant/wanderer. A species recorded well away from its known British breeding range, but the record most likely to have been the result of internal, domestic dispersal.

Channel Islands (VC **113**) records are no longer included in the main species accounts due to their southerly position, locating them outside the biogeographical area of Great Britain and Ireland. This often leads to differing statuses of listed species within VC **113** and occurrence patterns of immigrant species that are not comparable with records in Great Britain and Ireland. However, records of recent colonists and rare immigrants in VC **113** can be precursors of arrivals in Britain, so significant VC **113** records are given in Annex 3.

ANNEX 1: RECORDS OF SCARCER SPECIES IN 2003

TINEIDAE

0278 *Opogona sacchari* **(Bojer) [In]**
E. CORNWALL [2] A number of live and dead adults within one of the biomes at the Eden Project, Bodelva, 18.9 (J.L. Gregory).

CHOREUTIDAE

0386 *Tebenna micalis* **(Mann) [I]**
DORSET [**9**] Portland Bird Observatory, 5.8 (Cade, 2004).

YPONOMEUTIDAE

0424 *Yponomeuta evonymella* **(L.) [R][I/V]**
A widely recorded species, most records across southern England are thought likely to relate to migrants. A selection of submitted records is given, though this is in no way a comprehensive summary.
E. CORNWALL [**2**] Portmellon, 15.7 (Gregory, 2004). DORSET [**9**] Walditch, 26.6 (20), 27.6 (9) (Parsons & Brereton, 2004). PEMBROKESHIRE [**45**] Werngwyddel, 5.7, third VC record (Lewis, 2004). S.E. YORKSHIRE [**61**] Spurn, 22.6 – 12.7 (30) (BRS).

0428 *Yponomeuta cagnagella* **(Hb.) [R][V/I]**
S.E. YORKSHIRE [**61**] Spurn, 2.8 (BRS).

0428 *Yponomeuta rorrella* **(Hb.) [R][V/I]**
DORSET [9] Puddletown, 1.7 – 31.7 (8) (HWH per PHS); West Bexington, 10.7, 15.7 (RE per PHS);

Weymouth, 18.7, 19.7 (PHS). N. HAMPSHIRE [12] Old Basing, 4.7 (AHD). E. NORFOLK [27] Eccles-on-Sea, 8.7, 23.7, 24.7, 30.7 (NB per DH).
[DORSET [9] Walditch, 22.6 (6), 26.6 (7), 27.6 (3) (Parsons & Brereton, 2004) – now withdrawn by recorder.]

0429 ***Yponomeuta irrorrella* (Hb.) [R][V/I]**
E. KENT [15] Kingsdown, 2.8 (NJ).

0473 ***Acrolepiopsis assectella* (Zell.) [R][I/V]**
E. SUFFOLK [25] Landguard Bird Observatory, 11.10 (Odin, 2004).

OECOPHORIDAE

0642a ***Metalampra italica* Baldizzone [I/In?]**
S. DEVON [3] Plympton, 16.8 (RJH, in Langmaid & Young, 2004). New to Britain.

ETHMIIDAE

0718 ***Ethmia dodecea* (Haw.) [R][I/V]**
S. DEVON [3] Teignmouth, 9.7 (RFM). N. DEVON [4] Braunton, 25.6 (RFM). DORSET [9] Portland Bird Observatory, 3.7 (Cade, 2004); Walditch, 27.6 (Parsons & Brereton, 2004). E. KENT [15] Kingsdown, 30.6 (NJ); Kingsgate, 9.7 (FS); Ramsgate, 1.7, 3.7, 8.7 (Solly, 2004).

0720 ***Ethmia bipunctella* (Fabr.) [R][I][V]**
W. CORNWALL [1] IOS: St Mary's, Longstone, 26.9, 3.10, first county records (Scott, 2004a). DORSET [9] Upwey, 2.6 (PH). ISLE OF WIGHT [10] Totland, 7.8 (SAK-J, in Beaumont, 2004). W. SUSSEX [13] Kingsham, 9.8, first VC record (Patton, 2004). N. ESSEX [19] Dovercourt, 18.8 (CG per BG).

GELECHIIDAE

0857 ***Anarsia lineatella* (Zell.) [In][I]**
DORSET [9] Walditch, 15.7, first county record (Parsons & Brereton, 2004).

BLASTOBASIDAE

0875 ***Blastobasis phycidella* (Zell.) [In]**
DORSET [9] Bridport, 12.2, larva in imported pomegranate, adult reared (MSP, in Beaumont, 2004).

TORTRICIDAE

0955 ***Eupoecilia ambiguella* (Hb.) [R][V/I]**
DORSET [9] Studland, 5.8 (CM, JMc).

0990a ***Dichelia histrionana* (Frölich) [In?]**
MIDDLESEX [21] Wood Green, London, 8.6, at light (Sterling & Ashby, 2006). New to Britain.

1215 ***Thaumatotibia leucotreta* (Meyrick) [In]**
CHESHIRE [58] Anderton, 9.3, indoors (AW^2 per SF, det. JRL).

1248 ***Grapholita molesta* (Busck) [In]**
N. WILTSHIRE [7] Swindon, 12.9, larva in imported peach from Italy in supermarket, adult reared (SN, in Beaumont, 2004). S. HAMPSHIRE [11] Southampton, 12.9, mature larva in imported nectarine from Italy in supermarket, adult reared 28.9 (L. Winokur, det. KRT, in Beaumont, 2004).

1262 ***Cydia amplana* (Hb.) [I]**
DORSET [9] Portland Bird Observatory, 5.8 (Cade, 2004). S. HAMPSHIRE [11] Hurn, 12.8, 20.8 (MJ per PHS). W. SUSSEX [13] Walberton, 17.8 (JTR, in Langmaid & Young, 2004).

PYRALIDAE

1289 ***Euchromius ocellea* (Haw.) [I]**
Total no. reported: 10
W. CORNWALL [1] IOS: St Mary's, Longstone, 4.9, 18.12 (Scott, 2004a). S. SOMERSET [5] Merriot, 7.8 (R. Chatworthy per M. Ellis). DORSET [9] Durlston, 26.6 (PAD, SN); Portland Bird Observatory, 15.6 (MC); Preston, 28.3 (RL); Upwey, 24.3 (2) (PH). ISLE OF WIGHT [10] Totland, 25.8 (SAK-J). SHETLAND ISLANDS [112] Eswick, 7.8, second VC record (TR).

1291 ***Haimbachia cicatricella* (Hb.) [I][MC?]**
E. KENT [15] Dungeness, 19.7 (JC, AW^2, JMc) [not 16.7 as given in Ferguson, 2005]; Dymchurch, 8.8 (JO).

1296 ***Crambus silvella* (Hb.) [R][V/I]**
S. DEVON [3] Nr. Honiton, 5.8, first county record (B. Bewsher per RFM). W. SUSSEX [13] Walberton, 18.7 (JTR, in Langmaid & Young, 2004).

1314 ***Catoptria margaritella* (D. & S.) [R][I]**
E. SUFFOLK [25] Landguard Bird Observatory, 2.7 (Odin, 2004).

1322 ***Pediasia fascelinella* (Hb.) [R][I/V]**
E. KENT [15] Littlestone, 25.6 (KR per SPC).

1327 ***Ancylolomia tentaculella* (Hb.) [I]**
E. KENT [15] Lydd, 16.7 (SPC), fourth British record.

1330 ***Donacaula mucronellus* (Zinck.) [R][I/V]**
E. KENT [15] Greatstone, 11.6 (BB per SPC); Isle of Thanet, 10.7 (Ferguson, 2005).

1356a ***Evergestis limbata* (L.) [I][V][MC]**
Coastal records away from known populations, but most likely relate to range spread.
DORSET [9] Studland, 5.8 (CM, JMc). S. HAMPSHIRE [11] Lymington, 19.7 (AJP per TN). W. SUSSEX [13] Ferring, 4.7 (THF); Walberton, 14.7 (JTR per CRP). E. SUSSEX [14] Winchelsea, 5.7 (JEC, J. Spence per CRP), 19.7 (A. Kolaj per CRP). E. KENT [15] Greatstone, 14.7 (BB); Kingsdown, 22.6, 8.7 (NJ); St Margaret's Bay, 4.7 (Jarman, 2004).

1357 ***Evergestis extimalis* (Scop.) [R][I][V]**
An established resident in parts of southern England and East Anglia, and recorded more sporadically elsewhere. The following records are from areas where resident populations are not currently known, and are likely to relate to immigrant or vagrant examples.
W. CORNWALL [1] Church Cove, The Lizard, 7.8, 7.10 (Tunmore, 2004); IOS: St Agnes, July (2), August (2), October (1) (Hicks, 2004); IOS: St Mary's, Longstone, 21.6, 14.7 (Scott, 2004a). S. DEVON [3] Holcombe, 18.7 (RFM); Maidencombe, 6.8 (BFS). E. NORFOLK [27] Eccles-on-Sea, 15.7, 17.7, 18.7 (NB per DH). S.E. YORKSHIRE [61] Kilnsea, 16.7, 20.7, 27.7 (PAC), 22.7, 26.7, 7.8, 17.8 (BRS). N.E. YORKSHIRE [62] Coatham, Tees-mouth, 21.7 (CWP, in Langmaid & Young, 2004); Redcar, 21.6, by day (D. Money per SN).
WICKLOW [H20] Ashford, 24.7, new to Ireland (AT).

1368 ***Loxostege sticticalis* (L.) [I][FR]**
W. CORNWALL [1] IOS: St Mary's, Longstone, 9.8 (Scott, 2004a). S. DEVON [3] Dawlish Warren, 20.9 (BPH). DORSET [9] West Bexington, 19.9 (RE per PHS); Wyke Regis, 5.7 (DF per PHS). E. KENT [15] Kingsgate, 26.6 (FS).

1369 ***Uresiphita polygonalis* (D. & S.) [I]**
W. CORNWALL [1] Cury, The Lizard, 20.9 (Tunmore, 2004). S. SOMERSET [5] Norton Sub Hamdon, 26.9 (IM). DORSET [9] Durlston, 7.8 (JMc).

1370 ***Sitochroa palealis* (D. & S.) [I/V][R]**
Coastal records away from known populations.
W. CORNWALL [1] IOS: St Mary's, Longstone, 27.7 (Scott, 2004a). W. SUSSEX [13] Kingsham, 15.7 (Patton, 2004). E. KENT [15] Isle of Thanet, 19.6 (Ferguson, 2005). DORSET [9] Portland Bird Observatory, 9.7 – 11.8 (7) (MC); Preston, 29.7 (RL); Puddletown, 2.8 (HWH). N. ESSEX [19] Dovercourt, 19.7 (CG). S.E. YORKSHIRE [61] Spurn, 26.7, by day (BRS).

1374a ***Sclerocona acutellus* (Evers.) [In][I]**
DORSET [9] Walditch, 14.7 (MSP).

1375 ***Ostrinia nubilalis* (Hb.) [R][I][V]**
An established resident in south-east England, recently extending its range westward and northward. The following records may be the result of internal range expansion or fresh immigration from the continent.
W. CORNWALL [1] IOS: St Agnes, August (3) (Hicks, 2004); IOS: St Mary's, Longstone, 9.8 – 18.9 (9), including four on 17.8 (Scott, 2004a); Mylor Churchtown, August, undated (Cooke, 2004); The Lizard, 8.7, 9.7, 9.8, 28.8 (6), 31.8, 14.9, 16.9, 20.9 (Tunmore, 2004). S. DEVON [3] Abbotskerswell, 10.9 (BPH); Axminster, 9.9, 10.9 (2) (NAC per RFM); Hennock, undated (B&LB per RFM); Holcombe, 5.9 (RFM); near Salcombe, 16.9 (MB per RFM); Starcross, 21/23.6, 2/5.9 (AHD). DORSET [9] Dorchester, 31.8, 10.9 (J. Down); East Lulworth, 3.7 – 7.9 (8) (MSP *et al.*); Edmonsham, 5.9 (2) (PAD); Portland Bird Observatory, 14.7 – 5.9 (19) (Cade, 2004); Preston, 9.9 (RL); Puddletown, 29.8 – 22.9 (6) (HWH); Shapwick, 22.6, 30.6, 5.9 (4) (PAD); Trigon, 5.9, 21.9 (CM); Upwey, 25.6 – 11.9 (8) (PH); Walditch, 20.8 – 14.9 (7) (MSP); Warre Wood, 6.9 (4) (PHS); West Bexington, August (4),

September (27), inc. 5.9 (12) (Eden, 2004); Weymouth, 15.7, 6.9 (PHS); Wyke Regis, 5.9 (DF per PHS). ISLE OF WIGHT **[10]** Totland, 30.6, 10.8, 23.8, 2.9, 5.9 (3), 8.9, 11.9 (SAK-J). S. HAMPSHIRE **[11]** Hayling Island, 2.9 (Phillips, 2004); Southampton, 4.7 (P. Hack per SN). N. HAMPSHIRE **[12]** Selborne, 22.7 (AEA). SURREY **[17]** Leatherhead, 8.7 (GAC). MIDDLESEX **[21]** Regent's Park, 8.7 (2) (THF). BERKSHIRE **[22]** Dry Sandford, 24.6 (AK); Fernham, 13-17.6 (4) (SN); Reading, 14.7 (GAC). OXFORDSHIRE **[23]** Henley area, 8+ during June (DJW, in Beaumont, 2004). CAMBRIDGESHIRE **[29]** Wicken, 15.7 (DEW). SHETLAND ISLANDS **[112]** Eswick, 16.7, new to Scotland (TR).

W. CORK **[H3]** Crookhaven, 14-19.9 (Allen & Mellon, 2004).

1383 ***Psammotis pulveralis* (Hb.) [I]**
ISLE OF WIGHT **[10]** Totland, 15.7 (SAK-J).

1389 ***Udea fulvalis* (Hb.) [I/V][MC]**
Records away from known breeding populations.
DORSET **[9]** Swanage, 20.7 (W.G. Teagle per PHS); Trigon, 12.7 (CM). S. HAMPSHIRE **[11]** Hurn, 7.8 (MJ); Ringwood, 5.7 – 15.7 (8), the second successive year numbers have been recorded at this site (see Appendix 1) and likely to relate to a northward and inland extension of the breeding range - recording ceased at this site after 2003 (RF).

1401 ***Maruca vitrata* (Fabr.) [In][I]**
N. WILTSHIRE **[7]** Swindon, 25.3, larva in imported beans from Zambia in supermarket, adult reared 6.4 (SN, in Beaumont, 2004). HERTFORDSHIRE **[20]** Hitchin, May, larva on imported beans (Langmaid & Young, 2004), adult reared 26.6 (J. Webb per CWP).

1403 ***Diasemiopsis ramburialis* (Dup.) [I]**
Total no. reported: 44
W. CORNWALL **[1]** Cury, The Lizard, 22.8, 20.9 (Tunmore, 2004); IOS: St Agnes, 12.6, August (3), September (3) (Hicks, 2004); IOS: St Mary's, Longstone, 11.6, 5.8 (2), 6.8, 7.8, 8.8 (2), 12.8, 30.8, 8.9, 13.9 (2), 14.9, 18.9, 20.9, 24.9 (16 in total) (MAS); Mylor Churchtown, June, August, September, October, undated (Cooke, 2004); Perranarworthal, June, undated (Cooke, 2004). DORSET **[9]** Portland Bird Observatory, 17.8, 19.9 (Cade, 2004); Puddletown, 15.7 (HWH); Studland, 2.9, 3.9 (DCGB); West Bexington, 5.9 (RE per PHS). ISLE OF WIGHT **[10]** Bonchurch, 31.7 (JH); Totland, 9.10 (SAK-J). S. HAMPSHIRE **[11]** Fareham, 4.8 (K. Wheeler per TN). W. SUSSEX **[13]** Walberton, 24.7 (JTR per CRP). E. KENT **[15]** Folkestone, 12.8 (Beaumont, 2004); New Romney, 20.7 (KR). E. SUFFOLK **[25]** Denham, 24.7 (NW per AWP). CARMARTHENSHIRE **[44]** Pembrey Forest, 18.8, by day (not on 17.6 as given in Langmaid & Young, 2004); first county record (J. Baker per ANG).

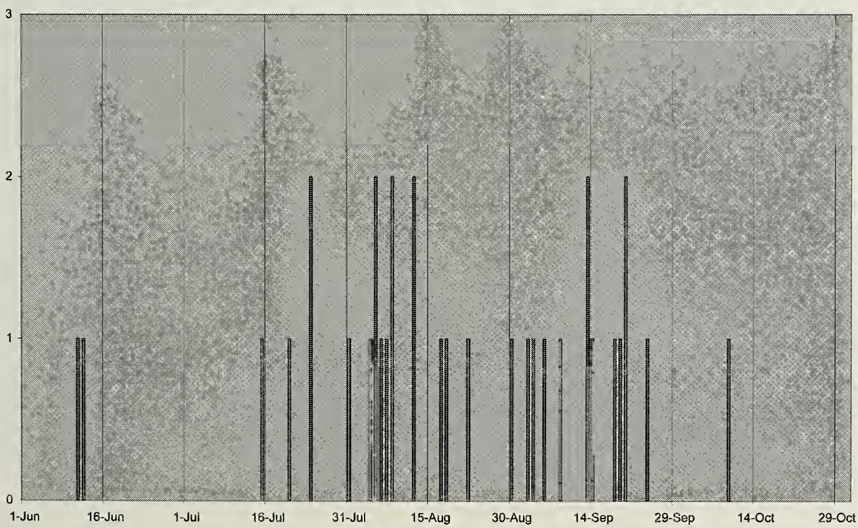

Fig. 5. Occurrence times of *Diasemiopsis ramburialis* during 2003 (dated records).

1403a ***Duponchella fovealis*** **(Zell.) [I][In][MC?]**

S. DEVON [**3**] Plymouth, 14.11, indoors (RJH, in Langmaid & Young, 2004). E. KENT [**15**] Kingsdown, 25.8, at light (NJ). N. ESSEX [**19**] Dovercourt, 1.9, at light (CG per BG). BUCKINGHAMSHIRE [**24**] Walter's Ash, 24.7, indoors (N. Fletcher, in Langmaid & Young, 2004). E. SUFFOLK [**25**] Aldeburgh, 20.9, at light (AWP); Reydon, 20.9, at light (AWP, AC). GLAMORGAN [**41**] North Cornelly, 24.7, new to Wales (Gilmore, 2004).

1408 ***Palpita vitrealis*** **(Rossi) [I]**

Total no. reported: 160

W. CORNWALL [**1**] Coverack, The Lizard, 12.10, 13.10 (DCGB); IOS: St Agnes, June (1), July (3), August (9), September (6), October (5) (Hicks, 2004), 11.10, 13.10 (2) (AD); IOS: St Mary's, Longstone, 30.6, 8.7, 5.8, September (6), October (8, including three on 13.10 and last on 14.10) (Scott, 2004a); Land's End, 5.7 (GBH); Mylor Churchtown, August, September, October, undated (Cooke, 2004); The Lizard, June (1), July (1), August (3), September (5), October (7) (Tunmore, 2004). S. DEVON [**3**] Nr. Bovey Tracey, 20.9 (B&LB per RFM); Teignmouth, 25.8 (RFM). DORSET [**9**] Corfe Castle, 26.9 (J. Cox per PHS); Durlston, 26.6 (PAD, SN), 5.9 (DCGB); Langton Matravers, 5.9 (3) (DCGB); Portland Bird Observatory, 19.8 – 28.9 (8) (MC per PHS); Puddletown, 6.9, 3.10 (HWH); Walditch, 26.6, 12.9, 2.10 (MSP per PHS); West Bexington, 15.9, 19.9 (RE per PHS); Weymouth, 5.9 (2), 6.9, 13.9 (PHS); Wyke Regis, 29.6, 12.8, 19.9 (DF per PHS). ISLE OF WIGHT [**10**] Bonchurch, 5.9, 9.9, 21.9, 11.10 (JH); Totland, 21.9, 27.9 (SAK-J); Ventnor 20.8 (2), 21.8 (2) (A. Kolaj per TN). S. HAMPSHIRE [**11**] Fareham, 21.9 (K. Wheeler per TN); Portchester, 17.8, 30.9 (JS per TN); Southampton, 17.8 (2) (ARC); Southsea, 9.8, 4.9 (JRL per TN), 21.8, 22.8 (3) (IRT per TN). W. SUSSEX [**13**] Ferring, 4.9 (THF per CRP); Kingsham, 2.9, 21.9 (Patton, 2004); Middleton-on-Sea, 23.8 (O. Laugharne per CRP); Pagham, 21.9 (THF per CRP); Walberton, 3.8, 31.8, 8.9 (JTR per CRP). E. SUSSEX [**14**] Heathfield, 27.7 (DRML per CRP); Peacehaven, 2.9 (CRP). E. KENT [**15**] Greatstone, 11.9, 14.9 (BB); Isle of Thanet, 26.6 – 2.10 (15) (Solly, 2004); Littlestone, 19.8, 20.8, 21.8 (KR); New Romney, 24.9 (SPC). S. ESSEX [**18**] Bradwell-on-Sea, 10.7, 21.9 (Dewick, 2004). E. SUFFOLK [**25**] Dunwich Heath, 14.7 (MC^2 per AWP). MONMOUTHSHIRE [**35**] Gaer, Newport, 25.6 (K. Dupe per SN). GLAMORGAN [**41**] Cwm Ivy, Gower, 6.9 (VS); Gorseinon, Swansea, 25.6 (T. Bantock per SN), 15.9 (Gilmore, 2004). PEMBROKESHIRE [**45**] Werngwyddel, 22.6, 17.9, second and third VC records (Lewis, 2004).

W. CORK [**H3**] Cape Clear Island, 12.10, 13.10 (per KB).

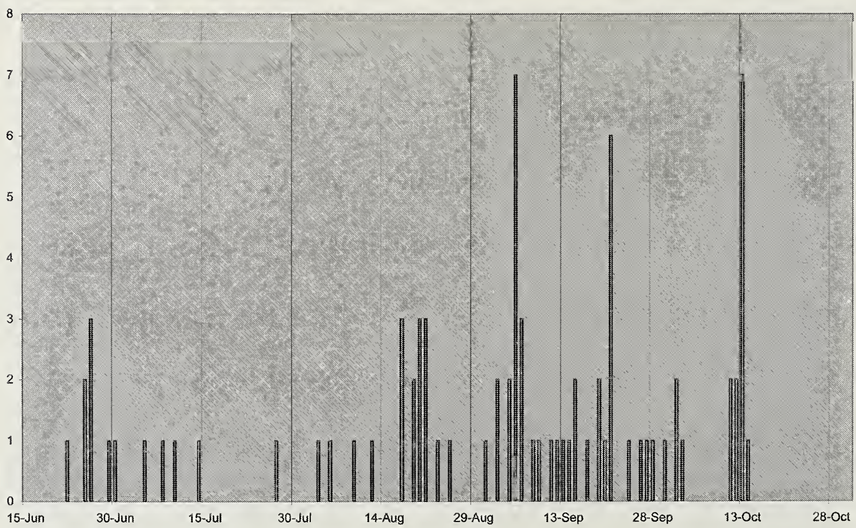

Fig. 6. Occurrence times of *Palpita vitrealis* during 2003 (dated records).

1416 ***Pyralis lienigialis*** **(Zell.) [R][V/I]**

DORSET [**9**] Weymouth, 17.7, first county record (DF det. PHS).

1430 *Paralipsa gularis* **(Zell.) [In?]**
N. ESSEX [19] Layer-de-la-Haye, 14.6 (BG & P. Pyke, in Langmaid & Young, 2004).

1434 *Cryptoblabes gnidiella* **(Mill.) [In]**
W. CORNWALL [1] Penzance area, late November, larva in purchased pomegranate, adult reared 28.12 (Gregory, 2004).

1435 *Conobathra tumidana* **(D. & S.) [I]**
Total no. reported: 14
DORSET [9] Durlston, 25.6 (JMc), 26.6 (3) (PAD, SN), 18.7 (SN); Portland Bird Observatory, 23.6 – 14.7 (3) (Cade, 2004); Preston, 25.6, 26.6 (RL). ISLE OF WIGHT [10] Totland, 16.7 (SAK-J, in Langmaid & Young, 2004). S. HAMPSHIRE [11] Portchester, 5.8 (JS). E. KENT [15] Kingsdown, 30.6 (NJ); Littlestone, 7.8 (KR per SPC).

1438 *Trachycera suavella* **(Zinck.) [R][I/V]**
SHETLAND ISLANDS [112] Eswick, 30.7, new to Scotland (P. Harvey, gen det. JC, in Langmaid & Young, 2004).

1447a *Sciota adelphella* **(Fisch.) [I][R]**
A local resident in parts of VC 15, the following records are away from known populations.
E. KENT [15] Isle of Thanet, 26.6 – 19.7 (5, from three sites) (Solly, 2004). W. KENT [16] Grain, 14.7 (AGJB, in Langmaid & Young, 2004). E. SUFFOLK [25] Eye, 5.7, 6.7 (PK per AWP); Landguard Bird Observatory, 17.6, 20.6 (Odin, 2004). E. NORFOLK [27] Eccles-on-Sea, 30.6 (NB, in Langmaid & Young, 2004), first county record.

1453 *Pima boisduvaliella* **(Guen.) [R][I/V]**
N.E. YORKSHIRE [62] Coatham, Tees-mouth, 21.7 (CWP, in Langmaid & Young, 2004). SHETLAND ISLANDS [112] Eswick, 22.7, new to Scotland (P. Harvey, gen det. JC, in Langmaid & Young, 2004).

1454 *Dioryctria abietella* **(D. & S.) [R][I][V]**
Coastal records away from suitable habitat.
W. CORNWALL [1] IOS: St Mary's, Longstone, 17.6 (Scott, 2004a). E. KENT [15] Greatstone, 10.6, 22.8 (BB per SPC); Isle of Thanet, 17.6 – 10.7 (6) (Solly, 2004); Lydd, 1.7 (KR per SPC); New Romney, 12.6 (SPC).

1454b *Dioryctria sylvestrella* **(Ratz.) [MC][I][V]**
Now breeding locally in south-east England, with the following records likely to relate to fresh immigration or internal vagrancy.
S. SOMERSET [5] Yeovil, 13.8, first county record (JA). ISLE OF WIGHT [10] Bonchurch, 4.8, 7.8 (Knill-Jones, 2004). S. HAMPSHIRE [11] Catherington, 19.7 (RJM, in Langmaid & Young, 2004). E. KENT [15] Littlestone, 7.8 (KR per SPC). SURREY [17] Chiddingfold, 22.6, first county record (AMD, in Langmaid & Young, 2004). W. NORFOLK [28] Mundford, 21.7 (AM *et al*, in Langmaid & Young, 2004). BEDFORDSHIRE [30] Maulden Wood, 9.7, first county record (CWP, in Langmaid & Young, 2004).

1461 *Assara terebrella* **(Zinck.) [R][I/V]**
DORSET [9] Gold Point, Arne, 14.6 (CM per PHS). ISLE OF WIGHT [10] Totland, 11.7 (SAK-J, in Langmaid & Young, 2004), 26.8 (Knill-Jones, 2004), new VC records.

1465 *Nephopterix angustella* **(Zell.) [R][V/I]**
E. CORNWALL [2] Bodelva, 16.9, 17.9 (Boggis, 2003); Portmellon, 15.7 (Boggis, 2003), first modern county records. GLAMORGAN [41] East Aberthaw, 20.9, first VC record (M.C. Powell).

1466a *Ancylosis cinnamomella* **(Dup.) [I]**
DORSET [9] Portland Bird Observatory, 11.8 (MC, gen. det. PHS, in Langmaid & Young, 2004). New to Britain.

1467 *Ancylosis oblitella* **(Dup.) [R][I/V]**
DORSET [9] Freshwater Bay, Portland, 7.8 (Cade, 2004); Furzey Island, 18.9 (PHS). S. HAMPSHIRE [11] Portchester, 7.9 (JS per TN); Southampton, 6.9 (ARC per TN). N. HAMPSHIRE [12] Grateley, 29.5, 15.6, 21.6 (S. Colenutt per TN). E. KENT [15] Dungeness, 11.7, 17.9 (DW per SPC); Lydd, August (undated), 17.9 (KR per SPC); New Romney, August (2, undated) (KR per SPC).

1471 *Euzophera osseatella* **(Treits.) [In]**
W. KENT [16] Grain, 8.8, to light (AGJB, in Langmaid & Young, 2004). All prior records have been bred from imported potatoes.

1472 *Euzophera bigella* **(Zell.) [In][I?]**
S. DEVON [3] Teignmouth, 7.6, to light (RFM, in Beaumont, 2004). All prior records have been associated with imported produce.

1475 ***Ephestia kuehniella*** **(Zell.) [In][I]**
W. SUSSEX [**13**] Kingsham, 1.8, from stored bird food (SJP, in Beaumont, 2004).

1476 ***Ephestia cautella*** **(Walk.) [In]**
DORSET [**9**] Dorchester, 23.1, indoors (PHS). E. SUFFOLK [**25**] Felixstowe, 14.10 (JBH & NO, in Langmaid & Young, 2004).

1478b ***Vitula biviella*** **(Zell.) [I/V][MC]**
A local resident in the southern part of VC **15**, the following record is away from any known population. E. KENT [**15**] Kingsgate, 30.6 (FS).

PTEROPHORIDAE

1492 ***Oxyptilus laetus*** **(Zell.) [I]**
DORSET [**9**] West Bexington, 25.6 (RE, PHS, gen. det. PHS).

PAPILIONIDAE

1538a ***Zerynthia polyxena*** **(D. & S.) Southern Festoon [In?]**
SURREY [**17**] Chiddingfold, 25.4 (R. Fry per NB).

1539 ***Papilio machaon*** **(L.) Swallowtail [R][I][In?]**
Total no. immigrants reported: 31
The following records are all likely to relate to continental race *gorganus* (Fruhs.).
N. WILTSHIRE [**7**] Wroughton, 31.8 (per NB). DORSET [**9**] Poole, 16.9 (D. Lummis per SN). S. HAMPSHIRE [**11**] Milford-on-Sea, 1.9 (A. Hoskins). W. SUSSEX [**13**] Hove, 14.7 (G. Legg per CRP). E. SUSSEX [**14**] Alciston, August, undated (M. Odlum per CRP); Chalvington, 28.7 (L. Goffin, D. Wicken per CRP); Hastings, 11.7 (R. Oldfield per CRP). E. KENT [**15**] Blean, 2.8 (M. Young per ME); Broadstairs, 2.8, 9.8 (Solly, 2004); Elmley, 31.7 (per ME); Folkestone Warren, 15.8 (M. Heath per SN); Herne Bay, 24.7, 30.7 (per NB); Oare Marshes, 24.7, 28.7 (per ME); Pegwell, 24.7, 3.8 (Solly, 2004); Reculver, 24.7, 28.7 (per ME); Samphire Hoe, 6.5 (T. Brereton); Sandwich, 6.8 (per M. Read); Seasalter, 20.7 (J. Russell); South Swale, July, undated (A. Swandale). W. KENT [**16**] Bluebell Hill, 13.7 (R. Bland per ME); Hoo peninsula, 6.8 (per ME); Lamberhurst, 9.5 (J. Overy per ME). SURREY [**17**] Hindhead, 3.8 (SJP). E. SUFFOLK [**25**] Bungay, 10.8 (L. Davis). BEDFORDSHIRE [**30**] no site, mid-Beds., 12.8 (per A. Banthorpe via SN). LEICESTERSHIRE [**55**] Earl Shilton, 27.8 (per S. Whitehouse).

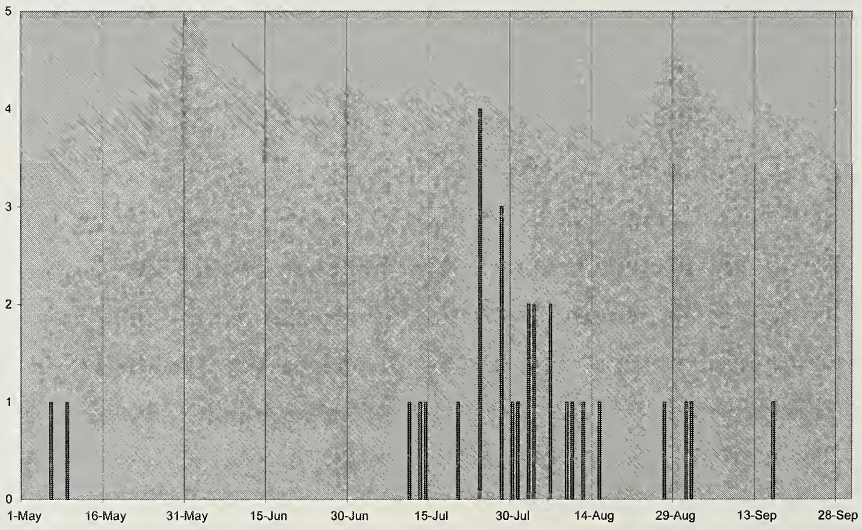

Fig. 7. Occurrence times of immigrant *Papilio machaon* adults during 2003 (dated records).

1552 *Pontia daplidice* **(L.) Bath White [I]**
[One reported on 22.8 from Gibraltar Point [54] (Sykes, 2003).]

LYCAENIDAE

1567 *Lampides boeticus* **(L.) Long-tailed Blue [I][In]**
W. CORNWALL [1] IOS: St Mary's, Longstone, 12.8 (Scott, 2004a). DORSET [9] Corfe Mullen, 17.8 (RL); Ham Common, 26.8 (M. & I. Rabjohns). SURREY [17] Near Denbighs, from 19.8 into September, two males, one female, and resultant larvae (anon.); Wrecclesham, 16.7, indoors (J. Gates per PH). OXFORDSHIRE [23] Henley-on-Thames, 20.9 (DJW).

NYMPHALIDAE

1592 *Vanessa virginiensis* **(Drury) American Painted Lady [I]**
W. CORNWALL [1] IOS: St Mary's, 18.10 (J. Headon).

1594 *Aglais polychloros* **(L.) Large Tortoiseshell [I][In?][FR]**
[Unconfirmed reports from Sandwich [15] on 11.7 (per M. Read); and at Piper's Vale, near Ipswich, [25] on 15.4 (per RP).]

1596 *Aglais antiopa* **(L.) Camberwell Beauty [I][In?]**
N. DEVON [4] Nr. Umberleigh, 15.7 (A. Gladwin per RFM). E. KENT [15] Elham, 16.3 (P. Gay per ME). W. KENT [16] East Malling, 25.3 (D. Blakesley per ME). E. SUFFOLK [25] Otley, 3.8 (M. Dickens); Woodbridge, 17.7 (C. Oates). S. LANCASHIRE [59] Woolston, 28.6 (anon.).
[Also an unconfirmed report from Cambridge [29] during April (J. Napier per SN).]

1603 *Issoria lathonia* **(L.) Queen of Spain Fritillary [I][In?]**
SOUTH WILTSHIRE [8] Salisbury, 23.7 (A.L. Butler, in Koryszko, 2004). DORSET [9] Southwell, Portland, 23.9 (Cade, 2004). CAMBRIDGESHIRE [29] Chatteris, 24.7 (M. Ward). STAFFORDSHIRE [39] Meir, Stoke-on-Trent, 3.8. The date of this record was initially published in error as 30.8 (Koryszko, 2003 & Anon., 2004).

DANAIDAE

1630 *Danaus plexippus* **(L.) Monarch [I][In]**
W. CORNWALL [1] IOS: St Mary's, 16.10, 1.11 (Scott, 2004a); Penzance, 1.9 (anon.). DORSET [9] Higher Hyde, 12.11 (per MSP).

LASIOCAMPIDAE

1639 *Dendrolimus pini* **(L.) Pine-tree Lappet [I]**
W. CORNWALL [1] Church Cove, the Lizard, 6.8 (MT).

SATURNIIDAE

1643a *Saturnia pyri* **(D. & S.) Great Peacock [In]**
NOTTINGHAMSHIRE [56] No locality given, late May, found by day in a garden (per AMD).

Unlisted *Actias luna* **(L.) American Moon Moth [In]**
DORSET [9] Parkstone, 15.9, a presumed escape (C. Marlow).

DREPANIDAE

1649 *Drepana curvatula* **(Borkh.) Dusky Hook-tip [I]**
W. CORNWALL [1] Maenporth, 11.8, first county record (GD). N. ESSEX [19] Skipper's Island, Hamford Water, 18.7 (RM).

GEOMETRIDAE

1664 *Aplasta ononaria* **(Fuessl.) Rest Harrow [R][V/I]**
Records away from known resident populations.
E. KENT [15] Grain, 6-18.8 (7) (AGJB, in Collins, 2004); Gravesend, 11.8 (R. Kiddie); Kingsgate, 15.7 (FS); Pegwell, 13.8, 18.8 (FS). SURREY [17] Nr. Ockley, 16.8, first county record (W. Attridge per DW). S. ESSEX [18] Thundersley, 5.8, second county record (D. Down per BG). N. ESSEX [19] Jaywick, 10.8, first VC record (JY per BG). E. SUFFOLK [25] Orfordness, 9.8 (J. Askins per MM).

1678 *Cyclophora puppillaria* **(Hb.) Blair's Mocha [I]**
W. CORNWALL [1] IOS: St Mary's, Longstone, 21.6, 1.8 (Scott, 2004a); IOS: St Mary's, 8.10, 13.10 (Scott, 2004a). W. SUSSEX [13] Ifield, 25.6 (M. Albertini per CRP); Walberton, 3.7 (JTR per CRP).

1678a ***Cyclophora ruficiliaria*** **(H.-S.) Jersey Mocha [I]**
DORSET **[9]** Freshwater Bay, Portland, 19.7, (Chainey & Spence, 2004). New to Britain
[ISLE OF WIGHT **[10]** five probable specimens were recorded at Compton Bay, 16.8 (4) and Ventnor, 18/19.8 (1), but their identification was unable to be verified (A. Kolaj, P.Sharpe).]

1684 ***Scopula nigropunctata*** **(Hufn.) Sub-angled Wave [R] [I] [V]**
E. KENT **[15]** Kingsdown, 2.7 (NJ); Kingsgate, 1.8 (FS). Probably both wanderers from local populations.

1688 ***Scopula rubiginata*** **(Hufn.) Tawny Wave [R] [I] [V]**
E. KENT **[15]** Lydd, 13.7 (KR); Lydd-on-Sea, 11.8 (KA per KR). N. ESSEX **[19]** Dovercourt, 14.7 (CG). E. SUFFOLK **[25]** Landguard Bird Observatory, 19.8 (NO), Minsmere, 23.7 (2) (Harvey, 2004). S.E. YORKSHIRE **[61]** Spurn, 7.8 (BRS).

1699 ***Idaea rusticata*** **(D. & S.) Least Carpet [R][I][V]**
W. CORNWALL **[1]** IOS: St Mary's, Longstone, 18.7, 21.7, 5.8 (Scott, 2004a).

1721 ***Xanthorhoe biriviata*** **(Bork.) Balsam Carpet [R][I][V]**
S. ESSEX **[18]** Bradwell-on-sea, 23.7, first VC record (A.J. & S.F. Dewick per BG). N. ESSEX **[19]** Jaywick, 2.7, first county record (JY per BG).

1771a ***Thera cupressata*** **(Geyer) Cypress Carpet [MC][V/I]**
S. DEVON **[3]** Branscombe, 14.6, second county record (CH, in Collins, 2004). E. KENT **[15]** Greatstone, 11.6, second county record (BB).

1815 ***Eupithecia abietaria*** **(Goeze) Cloaked Pug [I][R]**
DORSET **[9]** Puddletown, 3.7 (HWH).

1855a ***Eupithecia ultimaria*** **Boisd. Channel Islands Pug [MC][V/I]**
DORSET **[9]** West Bexington, 27.7 (RE); Wyke Regis, 5.9 (DF); the first county records.

1891 ***Macaria signaria*** **(Hb.) Dusky Peacock [I][MC?]**
ISLE OF WIGHT **[10]** Bonchurch, 23.6, first county record (JH).

1894 ***Chiasmia clathrata*** **(L.) Latticed Heath [R][I/V]**
S. ESSEX **[18]** Maldon, 18.8 (106) (S. Wood per SN).

1911 ***Ennomos autumnaria*** **(Werneb.) Large Thorn [R][I/V]**
ISLE OF WIGHT **[10]** Sandown, 29.8, first VC record (G. Henwood per AHD).

1918 ***Selenia lunularia*** **(Hb.) Lunar Thorn [R][I/V]**
E. KENT **[15]** Kingsgate, 12.6, 1.8 (FS).

1945 ***Cleorodes lichenaria*** **(Hufn.) Brussels Lace [R][I?]**
E. KENT **[15]** Kingsgate, 8.7 (FS).

SPHINGIDAE

1973 ***Acherontia atropos*** **(L.) Death's-head Hawk-moth [I]**
Total no. adults reported: 34
W. CORNWALL **[1]** IOS: St Agnes, 12.10 (Hicks, 2004); IOS: St Mary's, Longstone, 1.10 (Scott, 2004a); IOS: St Mary's, 25.6, 23.9, 12.10 (2), plus a larva on 15.8 (Scott, 2004a); Loe Pool, 11.10, larva (Tunmore, 2004); Sennen, 12.10 (K. Clarkson, in Boggis, 2003); The Lizard, 25.9, 13.10 (2) (Tunmore, 2004). E. CORNWALL **[2]** Launceston, 8.10 (M. Searle per PHB). S. DEVON **[3]** Nr. Bovey Tracey, 30.8, larva found in potato field, adult bred (B&LB per RFM); Daccombe, 5.10, by day (per BPH via RFM). N. DEVON **[4]** Bideford, 14.9, by day (SH per RFM); Meeth, 25.9, by day (per RFM); Westward Ho!, 20.9 (per SH via RFM). DORSET **[9]** Dorchester, 22.6, caught by cat (D. Lankshear); Weymouth, 18.9, dead on beach (N. Matthews per PAD). ISLE OF WIGHT **[10]** Brightstone, undated, three pupae found producing two adults in September (Knill-Jones, 2004); Knowles Farm, 7.8 (Knill-Jones, 2004). S. HAMPSHIRE **[11]** Portchester, 19.9 (JS); Titchfield Park, 2.9, two pupae (P. Budd per TN). W. SUSSEX **[13]** Bognor, 1.10, by day (C. Piper per CRP); Chichester, 12.8, by day (per MCP); Lancing, 8.8, larva on Jasmine (P. Allday, S. Carter per CRP); Partridge Green, 26.8, two larvae on potato plants (S. Allen per CRP); Portslade, 24.9, by day (I. Soffe per CRP); Warnham, 25.10, by day (M. Starks per CRP). E. KENT **[15]** Iwade, 24.7, larva (adult bred 5.9) (IC, OD); Ramsgate, 11.9 (Solly, 2004); Sandwich, 18.9 (per NJ). W. KENT **[16]** Near Maidstone, 26.7, larva (L. Brayshaw). SURREY **[17]** Godalming, 8/9.9, two larvae (per GAC). S. ESSEX **[18]** Recorded from six sites in the Southend area, including a larva at Westcliff in September (per D. Down & R. Payne via BG). HERTFORDSHIRE **[20]** Breachwood Green, 15.8, larva (M. Bremner per CWP). CAMBRIDGESHIRE **[29]** Cottenham, 20.9 (anon.). HUNTINGDONSHIRE **[31]** Upwood, 7.10 (L.

Poole per BD). WARWICKSHIRE [**38**] Stockton, 14.8, 'a few larvae' (per DCGB); Stratford-upon-Avon, 9.8 (per DCGB). GLAMORGAN [**41**] Margam Abbey, 3.10 (A. Lloyd); Resolven, 22.9, larva (Gilmore, 2004); Swansea, 11.6 (S&SW). LEICESTERSHIRE [**55**] Groby allotments, 9.8, 10.8, larvae (K. Hannon per APR); Kirby Muxloe, 10.8, 22.8, larvae (per APR); North Luffenham, 15.8, two larvae (M.W. Tyler per APR). ISLE OF MAN [**71**] Port Erin, 26.9, by day (per GDC).

FERMANAGH [**H33**] Nr. Enniskillen, 18.6, found dead (E. Irvine per IR); near Castle Caldwell, 14.9 (J. Magee per IR). ANTRIM [**H39**] Dunloy, 22.6, found dead (J. Stewart).

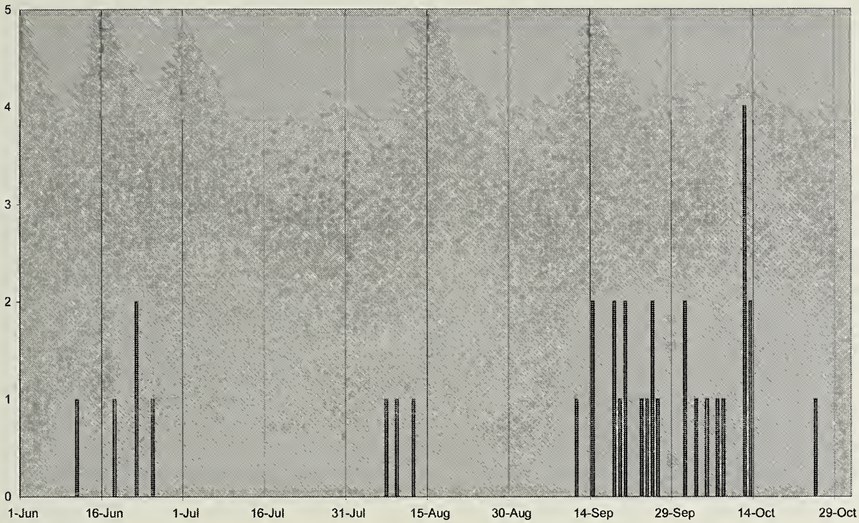

Fig. 8. Occurrence times of *Acherontia atropos* adults during 2003 (dated records).

1985 ***Daphnis nerii*** **(L.) Oleander Hawk-moth [I][In?]**
W. NORFOLK [**28**] Snettisham, 23.8 (G. Peach). This record is now thought to have related to an accidentally released/imported individual (K. Saul pers. comm.).

1986 ***Hyles euphorbiae*** **(L.) Spurge Hawk-moth [I][In?]**
E. KENT [**15**] Whitstable, 23.6 (J. Platts per IDF); Kingsgate, 30.6 (FS). E. SUFFOLK [**25**] Landguard Bird Observatory, 25-26.6 (Odin, 2004).
W. NORFOLK [**28**] Snettisham, 12.8 (G. Peach per DH). The latter record is now thought to have related to an accidentally released/imported individual (K. Saul pers. comm.).

1987 ***Hyles gallii*** **(Rott.) Bedstraw Hawk-moth [I][R]**
Total no. adults reported: 44
S. SOMERSET [**5**] Exmoor, 5.8 (M. Ridge). DORSET [**9**] East Lulworth, 5.8 (DH^2, T. Warburton). S. HAMPSHIRE [**11**] Southampton, 15.6 (per TN). N. HAMPSHIRE [**12**] Sherborne St John, 4.8 (N. Montegriffo). W. SUSSEX [**13**] Hassocks, 16.7 (per K. Ruff via CRP). E. KENT [**15**] Broadstairs, 6.8, 11.8 (K. Goodburn per FS); Kingsgate, 21.8 (FS). S. ESSEX [**18**] Bradwell-on-Sea, 4.7 (Dewick, 2004). N. ESSEX [**19**] Kirby-le-Soken, 5.7 (PB). HERTFORDSHIRE [**20**] Quickswood, 15.7 (D. Heath per CWP). E. SUFFOLK [**25**] Denham, 7.8 (NW); no locality given, 3.7, adult & three larvae (JHC). E. NORFOLK [**27**] Eccles-on-Sea, 13.7 (Bowman, 2004); New Buckenham, 6.8 (one confirmed, up to eight adults reported indoors) (per AM); Weybourne, 6.8, 9.8 (MP per DH). W. NORFOLK [**28**] Holme-next-the-Sea, 5.7 (per DH). CAMBRIDGESHIRE [**29**] St Ives, 11.8 (P. Haywood per SN). BEDFORDSHIRE [**30**] Potton, 24.6 (A. Darrington). HUNTINGDONSHIRE [**31**] Kings Ripton, 12.8 (D. Ritchie per BD). E. GLOUCESTERSHIRE [**33**] Cheltenham, 6.8 (R. Hornan per SN). WARWICKSHIRE [**38**] Pillerton Priors, 6.7 (C. Ivin per DCGB). MERIONETHSHIRE [**48**] Nr. Fairbourne, 15.8 (G. Fellows). LEICESTERSHIRE [**55**] Barrowden, 9.8 (R. Follows per MPS). NOTTINGHAMSHIRE [**56**] Collingham, 8.7, by day (S. Gelsthorpe per MK). S. LANCASHIRE [**59**] Hutton, 7.8 (A. Barker per SMP); St Helens, 22.8 (S. Ward). W. LANCASHIRE [**60**] Chipping, 27.7 (C & L. McWilliam per SMP). S.E. YORKSHIRE [**61**] Kilnsea, 3.7, 5.7, 12.7, the latter two by day (PAC),

5.7, 30.7 (BRS); Spurn, 13.7 (BRS); Escrick, York, 15.8 (per TE). BANFFSHIRE **[94]** Ordiquhill, 11.8 (RL[2]). E. INVERNESS-SHIRE **[96]** Tulloch, Loch Garten, 4.7 (M. Coleman). SHETLAND ISLANDS **[112]** Eswick, 16.8 (TR); Fair Isle, 14-16.7 (anon.); Foula, 18.7 (2) (G. & D. Atherton); Sumburgh, 8.9, larva (S. Fordyce); Unst, 8.8 (AJP); Uyeasound, 8.8 (anon.); Whalsay, 8.9, larva (I. & R. Sandison).

1990 ***Hyles livornica*** **(Esp.) Striped Hawk-moth [I]**
Total no. adults reported: 142
W. CORNWALL [1] Coverack, The Lizard, 13.10 (DCGB); Ding Dong, near Penzance, 16.6, 21.6 (JH[2]); IOS: St Agnes, 29.6, 21.7, plus a larva in August (Hicks, 2004); IOS: St Mary's, Longstone, 13.6, 14.6, 21.6 (3), 24.6 (2), 29.6 (2), 1.7 (3), 5.7, 13.9, 24.12, 25.12, 26.12 (2) (MAS); Land's End, 21.6 (GBH); Marazion, 26.6 (anon.); Mylor Churchtown, August, undated (Cooke, 2004); Nanquidno, 26.6 (anon.); St Dellan, near Penzance, 18.9 (J. Yarnold per PHB); The Lizard, June (2), July (5), August (2), September (6) (Tunmore, 2004). S. DEVON **[3]** Exmouth, 4.7 (RFM); Poundsgate, Dartmoor, 14.8, twelve larvae on *Antirrhinum majus* (per RFM); Slapton, mid-July, undated (E. Sola per RFM). N. DEVON [4] Bideford, 23.6, 26.6, three in total (ASH per RFM); Hartland Point, 22.6 (BPH, RFM). S. WILTSHIRE **[8]** Martin Down, 26.6 (TN, M. Trasenster). DORSET **[9]** Bothenhampton, 26.6 (2) (T. Brereton); Charmouth, 21.9 (D. Webb); Durlston, 25.6 (2) (JMc), 26.6 (PAD, SN), 20.9 (PAD); Southwell, Portland 6.8 (3) (JHC); Langton Matravers, 4.9 (DCGB); Portland Bird Observatory, 23.6, 31.8, 13.9, 15.9, 22.9 (MC per PAD); Preston, 15.6, 20.6, 22.6, 10.8 (RL), 17.9 (MF); Puddletown, 23.6, 25.6 (HWH); Slepe Farm, 3.6, 17.6, 22.6 (3), 26.6 (D. Cooper); Swanage, 22.6 (D. Leadbetter), 26.9 (RC[2]); Walditch, 22.6 (MSP); Waytown, 29.6 (G. Higgs); West Bexington, 24.6, 25.6, 26.6, 1.7 (RE per PAD); Wyke Regis, 13.6, 22.6, 6.8, 9.8, 14.9 (DF). ISLE OF WIGHT **[10]** Binstead, undated (2) (Knill-Jones, 2004); Bonchurch, 7.8, 10.8 (JH); Totland, 2.7, 11.8 (SAK-J). S. HAMPSHIRE **[11]** Funtley, 21.9 (M. Opie per TN); Hengistbury Head, 19.7 (MJ); Portchester, 15.8 (JS); Portsmouth, 14.6 (E.T. Roberts per TN). N. HAMPSHIRE **[12]** Overton, 25.9 (J. Hutchins per TN). W. SUSSEX **[13]** Kingsham, 26.6 (SJP per CRP); Pagham, 20.9 (2) (SRD per CRP); Walberton, 30.5, 26.6 (JTR per CRP). E. SUSSEX **[14]** Crowborough, June, undated (M.J. Simmons per CRP); Winchelsea Beach, 26.6 (DCGB). E. KENT **[15]** Deal, 14.7 (K. Webb); Dungeness, 17.6 (CR); Dymchurch, 9.9 (JO); Greatstone, 27.6 (BB); Isle of Thanet, 17.6 – 20.9 (8) (Solly, 2004); Kingsdown, 22.6 (FS); Lydd-on-Sea, 28.6 (RC); Lydd Ranges, 16.6 (IDF); Ruckinge, 6.6 (B. Boothroyd). S. ESSEX **[18]** Bradwell-on-Sea, 20.8 (Dewick, 2004). HERTFORDSHIRE **[20]** Hertford, 28.6 (AW per CWP). BERKSHIRE **[22]** Mortimer, 23.6 (G. Dennis per TN). OXFORDSHIRE **[23]** Oxford, 17.6 (C. Gibson). E. SUFFOLK **[25]** Aldeburgh, 28.6, dead on beach (AWP). W. NORFOLK **[28]** Holme-next-the-Sea, 12.8 (P. Tilley per DH). GLAMORGAN **[41]** Gower, 25.6 (S&SW); Roath, Cardiff, 22.9 (DRWG);.

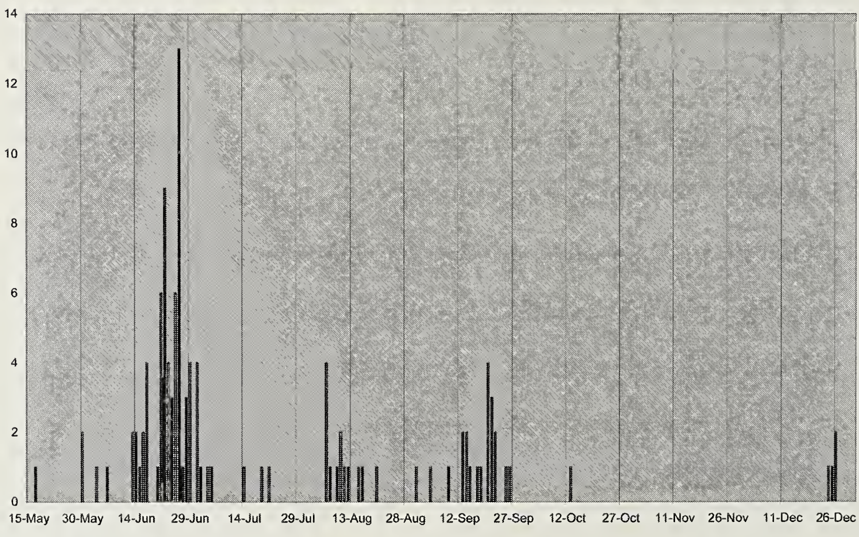

Fig. 9. Occurrence times of *Hyles livornica* adults during 2003 (dated records).

CARMARTHENSHIRE [44] Llwynhendy, Llanelli, 21.6, first modern county record (I. & T. Morgan). PEMBROKESHIRE [45] Skomer Island, 21.9, by day (Hayden, 2004). LEICESTERSHIRE [55] Ibstock, 14.9 (A.N. Main per APR). ISLE OF MAN [71] Ballamona, 17.5 (per GDC); Dhoon Maughold, 16.8 (per GDC).
WEXFORD [12] Wexford Quay, 25.6 (A. McGuire per IR). S.E. GALWAY [H15] Nr. Kinvarra, 30.5 (T. Boyd). WICKLOW [H20] Ashford, 16.6 (AT).

2016 ***Gluphisia crenata* (Esp.) Dusky Marbled Brown [I]**
E. KENT [15] New Romney, 17.6 (not at Lydd as published in Clancy, 2004), first county record (KR per SPC).

2018 ***Clostera anachoreta* (D. & S.) Scarce Chocolate-tip [I][FR]**
DORSET [9] Studland, 27.7, first modern county record (A. Peters).

LYMANTRIIDAE

2029 ***Euproctis chrysorrhoea* (L.) Brown-tail [R][V/I]**
S.E. YORKSHIRE [61] Spurn, 10.7 (BRS).

2034 ***Lymantria dispar* (L.) Gypsy Moth [I][FR]**
DORSET [9] Durlston, 5.8 (JMc). E. SUFFOLK [25] Landguard Bird Observatory, 16.7 (Odin, 2004).

ARCTIIDAE

2041 ***Pelosia muscerda* (Hufn.) Dotted Footman [R][I]**
E. SUSSEX [14] Elms Farm, Icklesham, 5.7 (IDH per CRP); Horns Cross, 29.6 (DB per CRP). E. KENT [15] Nr. Canterbury, 4.7 (S. Warry); Dungeness, 9.7 (DW), 19.7 (SJP); Kingsdown, 3.7 (NJ). S. ESSEX [18] Bradwell-on-Sea, 15.7, 16.7 (2), 19.7 (Dewick, 2004). E. SUFFOLK [25] Minsmere, 16.7 (2) (Harvey, 2004).

2045 ***Eilema caniola* (Hb.) Hoary Footman [R][I/V]**
DORSET [9] Freshwater Bay, Portland, 23.8 (JEC, J. Spence); West Bexington, 22.8 (Eden, 2004). N. HAMPSHIRE [12] Farnborough, 10.7 (P.H. Clarkson per TN). W. SUSSEX [13] Walberton, 31.7 (JTR per CRP). E. SUSSEX [14] Crawley Down, 8.8, 10.8, 15.8, 26.8 (JHC per CRP); Ditchling, 21.7 (SRD per CRP); East Grinstead, 9.8, 12.8, 13.8 (JHC per CRP); Heathfield, late July, undated (DRML per CRP); Winchelsea, 19.7 (A. Kolaj per CRP). W. KENT [16] Tunbridge Wells, 17.7 (K. Palmer).

2046 ***Eilema pygmaeola* (Doubl.) Pigmy Footman [R][V/I]**
S.E. YORKSHIRE [61] Spurn, 16.7 (BRS).

2051 ***Lithosia quadra* (L.) Four-spotted Footman [R][I]**
Resident populations occur widely in south-west England and southern Ireland, these probably reinforced by immigration. However records from these areas have been excluded as their origins are generally indeterminable and likely to be mainly associated with local breeding populations.
S. DEVON [3] Prawle Point, 4.8 (JMc). DORSET [9] Bridport area, 17.9 (Parsons & Brereton, 2004); Durlston, 26.6 (2) (PAD, SN), 19.9 (SN); Melbury Park, 26.6 (PAD, SN); Portland Bird Observatory, 11.8 (MC); Puddletown, 3.7 (HWH); Slepe Farm, 22.6 (D. Cooper per PAD); Studland, 5.8 (JMc, CM); Upwey, 26.6 (PH); Walditch, 17.9 (MSP); Warre Wood, 25.7 (21), 2.8 (8) (DF per PAD); West Bexington, 26.6 (RE); Weymouth, 18.7 (PHS). ISLE OF WIGHT [10] Freshwater, 30.7 (DBW). S. HAMPSHIRE [11] Christchurch, 8.8 (R. Chapman per TN); Lower Test, 27.6 (S. King per TN). W. SUSSEX [13] Church Norton, 28.6 (BFS per CRP); Ferring, 11.9 (THF per CRP); Pagham, 20.9 (N. Hall per CRP). E. SUSSEX [14] Icklesham, 13.6 (IDH per CRP). E. KENT [15] Littlestone, 20.9 (KR). N. ESSEX [19] Jaywick, 17.6 (JY per BG). CARMARTHENSHIRE [44] Pembrey Forest, 9.7 (J. Baker per SN).
FERMANAGH [H33] Crom, 16.7 (2) (per IR). DOWN [H38] Castleward, undated (per IR). ANTRIM [H39] Lisburn, undated (per IR).

2054 ***Utetheisa pulchella* (L.) Crimson Speckled [I]**
W. CORNWALL [1] St Dellan, near Penzance, 23.9, 24.9, 26.9, by day (J. Yarnold per PHB).

2067 ***Euplagia quadripunctaria* (Poda) Jersey Tiger [R][I/V]**
The following record is likely to be a wanderer from a resident population.
W. SUSSEX [13] Ferring, 4.8 (THF per CRP).

CTENUCHIDAE

2073 ***Antichloris viridis* (Druce) Satin Stowaway [In]**
MID-W. YORKSHIRE [64] Harrogate, December, adult crawling over bananas in a supermarket (Jobe & Fletcher, 2004).

2074a ***Antichloris eriphia*** **(Fabr.) Banana Stowaway [In]**
E. NORFOLK [27] Great Yarmouth, 21.10, in a supermarket (D. Melton per GMH).

NOLIDAE

2076 ***Meganola albula*** **(D. & S.) Kent Black Arches [R][I/V]**
S.E. YORKSHIRE [**61**] Kilnsea, 6.7 (BRS); Spurn, 12.7, 14.7, 19.7 (BRS).

2079 ***Nola aerugula*** **(Hb.) Scarce Black Arches [I]**
E. KENT [**15**] Dungeness, 4.7 (KR per SPC); Kingsdown, 9.7 (Jarman, 2004); Kingsgate, 4.8 (FS); Lydd-on-Sea, 13.7 (M.J. Tickner per SPC). E. NORFOLK [**27**] Eccles-on-Sea, 17.7 (Bowman, 2004). S.E. YORKSHIRE [**61**] Spurn, 15-16.7 (BRS).

NOCTUIDAE

2094 ***Agrotis crassa*** **(Hb.) Great Dart [I][FR]**
DORSET [**9**] Wyke Regis, 7.8 (DF). W. SUSSEX [**13**] West Chiltington, near Pulborough, 9.8 (P.J. Heath per CRP). E. KENT [**15**] Dungeness, 1.8 (DW).

2102a ***Ochropleura leucogaster*** **(Frey.) Radford's Flame Shoulder [I]**
W. CORNWALL [**1**] IOS: St Agnes, 5.10 (MEH).

2107 ***Noctua pronuba*** **(L.) Large Yellow Underwing [R][I]**
Significant coastal influxes included the following records:
DORSET [**9**] Durlston, 26.6 (c.5000), with a significant arrival of immigrant species (SN, PAD); 7.8 (1240) (JMc); Southwell, Portland, 6.8 (500) (JHC).

2111a ***Noctua janthina*** **(D. & S.) Langmaid's Yellow Underwing [I][MC?]**
Total no. reported: 37
DORSET [**9**] Portland Bird Observatory, 4.8, 5.8 (2) (MC); Wyke Regis, 5.8 (DF). The first county records. W. SUSSEX [**13**] Kingsham, 5.8 (SJP per CRP) [not 5.7 as given in Collins, 2004]; West Kingston 6.8 (SJP per CRP). E. SUSSEX [**14**] Winchelsea, 9.8 (JEC, J. Spence per CRP), first county records. E. KENT [**15**] Deal, 12.8 (K. Webb per NJ); Dungeness, 11.7, 19.7, 25.7, 1.8, 13.8 (DW), 1.8, 5.8, 13.8 (CR per SPC), 10.8 (BB); Dymchurch, 29.6 (JO); Kingsgate, 3.7 (FS); Lydd, 27.7, 2.8, 6.8 (KR); Lydd-on-Sea, 19.7, 24.7, 3.8, 7.8 (KA per SPC); New Romney, 5.8, 10.8, 11.8, 13.8 (2) (KR, SPC); Sandwich, 8.8 (M. Read per NJ); West Hythe, 5.8 (4) (SPC), 7.8 (DCGB), first county records.

2148 ***Polia bombycina*** **(Hufn.) Pale Shining Brown [R][I]**
E. KENT [**15**] Lydd-on-Sea, 6.7 (KA per KR).

2160a ***Lacanobia splendens*** **(Hb.) Splendid Brocade [I]**
Total no. reported: 12
W. CORNWALL [**1**] IOS: St Mary's, Longstone, 15.7, 25.7, 29.7 (MAS). DORSET [**9**] Boys Wood, 7.7 (PAD); Swanage, 5.7 (RC^2, in Cade, 2004b); Portland Bird Observatory, 1.7 (Cade, 2004b); Puddletown, 1.7 (HWH); Wyke Regis, 30.6 (DF). ISLE OF WIGHT [**10**] Totland, 5.7 (SAK-J). E. KENT [**15**] Dymchurch, 14.6, 16.6 (JO); Lydd, 24.6 (KR). New to Britain.

2183 ***Orthosia miniosa*** **(D. & S.) Blossom Underwing [R][I/V]**
W. CORNWALL [**1**] Cury, The Lizard, 17.4 (Tunmore, 2004). DORSET [**9**] Portland Bird Observatory, 16.4 (Cade, 2004); Upwey, 4.4, 20.4 (PH); West Bexington, 17.4 (RE). N. ESSEX [**19**] Abbotts Hall, 6.4 (G. Catchpole per BG); Dovercourt, 29.3 (CG); Frinton-on-Sea, 15.4 (2) (B. Lock per BG); Layer-de-la-Haye, five during April (P. Pyke per BG).

2194 ***Mythimna albipuncta*** **(D. & S.) White-point [R][I]**
An established resident within the southern and eastern seaboard counties between Dorset [**9**] and East Suffolk [**25**], and records are only listed from outside this area.
W. CORNWALL [**1**] Housel Bay, The Lizard, 21.10 (APR); IOS: St Mary's, Longstone, 3.7 – 18.10 (17) (Scott, 2004a); The Lizard, 2.10, 25.10 (Tunmore, 2004). S. DEVON [**3**] Bere Alston, 16.10 (T. Sleep per RFM); Dawlish, 12.8, 22.8 (PF per RFM); Prawle Point, 20.8 (PF per RFM); near Salcombe, 13.9 (MB per RFM); Slapton, 1.8 (R. Hilton per RFM); Teignmouth, 12.8 (RFM). HERTFORDSHIRE [**20**] Ware, 18.6 (L. Goodyear). MIDDLESEX [**21**] Horsenden Hill, 18.6 (R. Terry per CWP). E. NORFOLK [**27**] Eccles-on-Sea, 14.6 – 8.10 (12) (Bowman, 2004); Scole, 4.8, 8.8, 9.8, 12.8, 16.8, 17.8, 23.8, 28.8, 9.9, 13.10, 15.10, 28.11 (M. Hall per DH); Stoke Holy Cross, 8.5 (AM); Thurgarton, 3.8 (C. Dunster per DH). BEDFORDSHIRE [**30**] Cockayne Hatley, 14.8 (I.P. Woiwood per LH). PEMBROKESHIRE [**45**] Skomer Island, 4.7 (Hayden, 2004).

2202 ***Mythimna l-album*** **(L.) L-album Wainscot [R][I]**
An established resident within the southern seaboard counties between West Cornwall [**1**] and East Kent [**15**], and records are only listed from outside this area.

S. ESSEX [**18**] Tillingham, 21.9 (A. Malley per BG). N. ESSEX [**19**] Jaywick, 13.9, 21.9 (JY per BG); Kirby-le-Soken, 30.9 (PB per BG); Landermere, 28.9 (J.B. Fisher per BG); St Osyth, 13.9, 2.10 (R.W. Arthur per BG). E. SUFFOLK [**25**] Bawdsey, 1.10 (MD per AWP); Landguard Bird Observatory, 3.9 – 9.10 (5) (Odin, 2004); Orfordness, 17.9, 18.9, 23.9 (J. Askins per AWP).

2208 ***Mythimna loreyi* (Dup.) Cosmopolitan [I]**
Total no. reported: 97
W. CORNWALL [**1**] IOS: St Agnes, 2.10 (2), 11.10, 12.10 (2), 6.11 (MEH, AD); IOS: St Mary's, Longstone, 1.7, August (4), September (9), October (2), 1.11, 4.11, 10.11 (2), 15.11, 18.11 (2) (MAS); Mylor Churchtown, October, undated (Cooke, 2004); The Lizard, August (1), September (1), October (4), November (8) (Tunmore, 2004). S. DEVON [**3**] Abbotskerswell, 19.9 (BPH); Prawle Point, 13.9 (A. Trout per RFM). DORSET [**9**] Durlston, 19.9 (2) (SN); Langton Matravers, 5.9 (DCGB); Portland Bird Observatory, 25.6 – 28.9 (19) (Cade, 2004); Preston, 25.6 (RL); Puddletown, 14.9, 22.9 (HWH); Ringstead, 28.6 (MF, DF, RL); Shapwick, 19.9, 30.9 (PAD); Upwey, 27.6, 3.10 (PH); Walditch, 20.9 (2), 30.9, 13.10 (MSP); West Bexington, 21.8, 25.8, 1.9, 14.9, 22.9, 25.9 (RE); Weymouth, 2.10 (PHS); Wyke Regis, 1.9, 30.9 (DF). ISLE OF WIGHT [**10**] Totland, 1.10 (2) (SAK-J). W. SUSSEX [**13**] Walberton, 13.10 (JTR per CRP). E. SUSSEX [**14**] Peacehaven, 16.10 (CRP). E. KENT [**15**] Dymchurch, 21.9 (JO); Lydd, 4.10 (KR). GLAMORGAN [**41**] Pilton Green, Gower, 19.10 (Gilmore, 2004). ISLE OF MAN [**71**] Foxdale Patrick, 9.5 (per GDC).

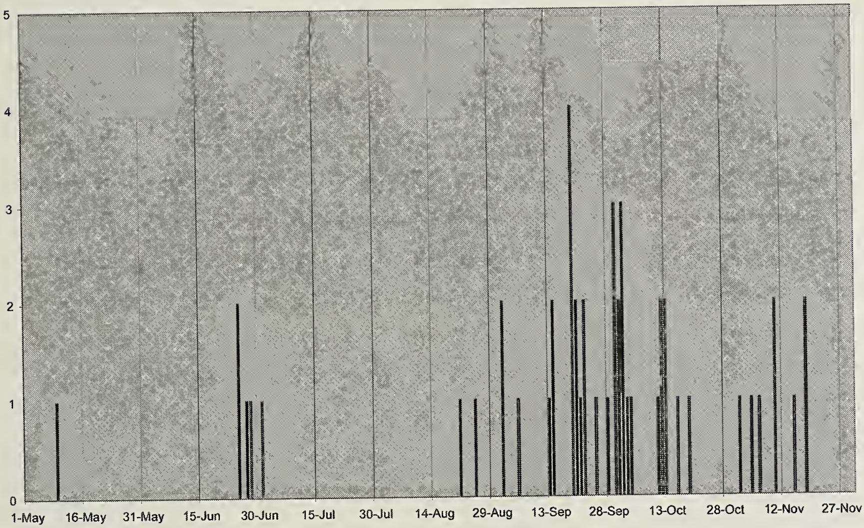

Fig. 10. Occurrence times of *Mythimna loreyi* during 2003 (dated records).

2240 ***Lithophane leautieri hesperica* (Bours.) Blair's Shoulder-knot [R][V/I]**
ISLE OF MAN [**71**] Dhoon Maughold, 29.9 – 28.10 (17) (per GDC). Probably breeding on the island. Also now likely to be breeding in Ireland where this species was recorded from two locations in **H20** that produced the first Irish records in 2002 (per IR).

2241 ***Xylena vetusta* (Hb.) Red Sword-grass [R][I][V]**
S. SOMERSET [**5**] Nr. Exford, 23.4 (A. Middleton per SN). DORSET [**9**] Puddletown, 29.4 (HWH); Shapwick, 24.3 (PAD); Slepe Farm, 25.3, 2.4, 3.4 (D. Cooper); Woolland, 12.4 (P. Benham per PAD).

2242 ***Xylena exsoleta* (L.) Sword-grass [R][I][V]**
E. SUFFOLK [**25**] Reydon, 20.9 (AC per AWP).

2251 ***Trigonophora flammea* (Esp.) Flame Brocade [I][FR]**
S. HAMPSHIRE [**11**] Hengistbury Head, 10.10 (MJ). E. KENT [**15**] Pegwell, 3.10 (FS).

2261 ***Conistra erythrocephala* (D. & S.) Red-headed Chestnut [I][FR]**
S. SOMERSET [**5**] Norton Sub Hamdon, 25.11 (IM). E. SUSSEX [**14**] Peacehaven, 5.11 (CRP). N. ESSEX [**19**] Dovercourt, 8.11, first county record (CG).

2275 ***Xanthia gilvago*** **(D. & S.) Dusky-lemon Sallow [R][V/I]**
W. CORNWALL [1] The Lizard, 13.10, 21.10 (SN, APR); IOS: St Mary's, Longstone, 23.10, (Scott, 2004a). The first county records.

2276 ***Xanthia ocellaris*** **(Borkh.) Pale-lemon Sallow [R][I][V]**
S. HAMPSHIRE **[11]** Southsea, 3.10 (IRT), first county record. W. SUSSEX **[13]** Kingsham, 13.10 (SJP per CRP); Walberton, 7.10, 10.10 (JTR per CRP). E. KENT **[15]** Dungeness, 22.9 (KR per SPC); Ramsgate, 8.10 (FS).

2290 ***Simyra albovenosa*** **(Goeze) Reed Dagger [R][V/I]**
W. SUSSEX [14] Kingsham, 14.7, 16.7 (Patton, 2004). S.E. YORKSHIRE **[61]** Kilnsea, 15.7, 16.7; Spurn, 16.7, 7.8 (BRS).

2292 ***Cryphia algae*** **(Fabr.) Tree-lichen Beauty [I][MC]**
Total no. reported: 36
DORSET **[9]** Durlston, 7.8 (JMc), 8.8 (SN); Portland Bird Observatory, 1.8 (MC). ISLE OF WIGHT **[10]** Bonchurch, 10.8, 11.8 (JH); Ventnor, 15.8, 17.8, 18.8 (Knill-Jones, 2004). S. HAMPSHIRE **[11]** Hayling Island, 4.8, 7.8 (Phillips, 2004). W. SUSSEX **[13]** Walberton, 1.8, 4.8 (JTR per CRP). E. SUSSEX **[14]** Hastings, 15.7 (NMH per CRP). E. KENT **[15]** Greatstone, 16.7, 7.8 (BB); Kingsgate, 1.8, 4.8, 6.8 (FS); Littlestone, 21.7 (KR); New Romney, 5.8 (KR); Pegwell, 8.8 (FS); Ramsgate, 24.7 (Solly, 2004). W. KENT **[16]** Dartford, 28.7, 10.8 (West, 2004); Woolwich, 6.8 (R. Clark). N. ESSEX **[19]** Kirby-le-Soken, 25.7 (PB); Little Oakley, 22.7 (GS), first county records. MIDDLESEX **[21]** Regents Park, London, 8.7, 20.7, 12.8 (2) (THF). E. SUFFOLK **[25]** Landguard Bird Observatory, 10.7, 15.7, 22.7, 2.8, 5-6.8 (Odin, 2004), first county records.

2294 ***Cryphia raptricula*** **(D. & S.) Marbled Grey [I]**
E. KENT **[15]** Greatstone, 10.8 (BB). E. SUFFOLK **[25]** Landguard Bird Observatory, 20.7, first county record (Odin, 2004).

2304 ***Trachea atriplicis*** **(L.) Orache Moth [I][FR]**
S. DEVON **[3]** Dawlish, 2.7 (PF, in Collins, 2004). DORSET **[9]** Portland Bird Observatory, 19.7 (Cade, 2004); Upwey, 31.7 (PH). ISLE OF WIGHT **[10]** Bonchurch, 4.7 (JH). W. SUSSEX **[13]** Middleton-on-Sea, 4.7, first county record (O. Laugharne per CRP).

2097a ***Actinotia hyperici*** **(D. & S.) Pale-shouldered Cloud [I]**
E. SUFFOLK **[25]** Landguard Bird Observatory, 6.5, 3.6, first county records (Odin, 2004).

2349 ***Chortodes fluxa*** **(Hb.) Mere Wainscot [R][V/I]**
S.E. YORKSHIRE **[61]** Kilnsea, 6.8 (BRS).

2357 ***Amphipoea lucens*** **(Frey.) Large Ear [R][I]**
N. ESSEX **[19]** Kirby-le-Soken, 7.8, third county record (PB, BG).

2386 ***Spodoptera littoralis*** **(Boisd.) Mediterranean Brocade [In][I]**
SURREY **[17]** Carshalton, 16.6 (D.A. Coleman, in Collins, 2004).

2387a ***Platyperigea kadenii*** **(Frey.) Clancy's Rustic [I]**
S. HAMPSHIRE **[11]** Southsea, 11.7, first county record (JRL). W. SUSSEX **[13]** Walberton, 27.6, first county record (JTR per CRP). E. KENT **[15]** Greatstone, 4.7, 18.9 (BB); Lydd, 21.9, 8.10 (CT per SPC).

2392a ***Proxenus hospes*** **(Frey.) Porter's Rustic [I]**
W. CORNWALL **[1]** IOS: St Agnes, 13.9, 16.9 (MEH); IOS: St Mary's, Longstone, 17.9, 20.9, 26.9 (MAS). DORSET **[9]** Portland Bird Observatory, 13.8, first county record (MC).

2404 ***Heliothis nubigera*** **(H.-S.) Eastern Bordered Straw [I]**
W. CORNWALL **[1]** IOS: St Mary's, Longstone, 17.6, 25.6, first county records (MAS). DORSET **[9]** West Bexington, 25.6 (RE). ISLE OF WIGHT **[10]** Coastguard Cottages, Needles, 23.7, first county record (DH^2, M.C. Harvey). S. ESSEX **[18]** Maldon, 8.6, first county record (R. Neave, S. Wood per BG).

2407 ***Eublemma ostrina*** **(Hb.) Purple Marbled [I]**
W. CORNWALL **[1]** Maenporth, 5.11 (GD). DORSET [9] Durlston, 26.6 (2) (PAD, SN); Portland Bird Observatory, 24.8 (Cade, 2004).

2408 ***Eublemma parva*** **(Hb.) Small Marbled [I]**
DORSET **[9]** Preston, 30.6 (RL); West Bexington, 25.6, 24.8 (RE). N. HAMPSHIRE **[12]** Selborne, 10.7 (AEA). S. LANCASHIRE **[59]** Pennington, 13.7 (PP per SMP).

2413 ***Deltote bankiana*** **(Fab.) Silver Barred [R][I/V]**
E. KENT **[15]** Dumpton, 19.6 (Solly, 2004); Kingsdown, 22.6 (FS); Littlestone, 30.6 (KR). W. KENT **[16]** Grain, 26.6 (AGJB) (not 26.4 as given in Collins, 2004). N. ESSEX **[19]** Copperas Wood, near Ramsey, 5.7 (P. Smith per BG); Dovercourt, 3.7 (CG); Frinton-on-Sea, 2.7 (B. Lock per BG).

2415 *Acontia lucida* **(Hufn.) Pale Shoulder [I]**
W. CORNWALL [1] IOS: St Agnes, 14.7 (MEH). W. SUSSEX [13] Kingsham, 6.8 (SJP per CRP). E. KENT [15] Lydd-on-Sea, 21.9 (RC per SPC).

2418 *Earias clorana* **(L.) Cream-bordered Green Pea [R][I/V]**
W. CORNWALL [1] IOS: St Agnes, 17.7 (Hicks, 2004).

2420a *Earias vittella* **(Fabr.) [In?]**
DORSET [9] Durlston, 16.6, to light. A pest species of cotton & okra pods, only previously recorded in Britain as an intercept (Nash, 2003).

2423 *Nycteola asiatica* **(Krul.) Eastern Nycteoline [I]**
E. KENT [15] Dungeness, 2.7 (DW, SPC, det. MRH).

2428 *Chrysodeixis chalcites* **(Esp.) Golden Twin-spot [I][In]**
Total no. immigrants reported: 8
W. CORNWALL [1] Church Cove, The Lizard, 25.9 (Tunmore, 2004); IOS: St Agnes, 1.10, new to the Scillies (Hicks, 2004). S. ESSEX [18] Maldon, 7.9 (R. Neave per BG). E. SUFFOLK [25] Dunwich, 5.9 (JBH, AJM); Landguard Bird Observatory, 19.8, 2.10 [second date published in error as 19.9 in Odin, 2004] (NO). W. LANCASHIRE [60] Heysham, 5.7 (J. Holding per SMP), first county record. S.E. YORKSHIRE [61] Filey, 3.10 (anon.).
E. CORNWALL [2] A colony established within one of the biomes at the Eden Project, Bodelva, with a number of larvae present on 26.3 & 30.5 (J.L. Gregory), and regular records of adults and larvae subsequently (J.L. Gregory, pers. comm.).

2432 *Trichoplusia ni* **(Hb.) Ni Moth [I]**
Total no. reported: 58
W. CORNWALL [1] Church Cove, The Lizard, 6.8 (Tunmore, 2004); IOS: St Agnes, 14.7, 6.8 (Hicks, 2004), 14.10 (Davison, 2004); IOS: St Mary's, Longstone, 26.6, 4.7 (Scott, 2004a). N. DEVON [4] Hartland Point, 22.6 (BPH, RFM), 6.9, by day (P. Bryant). S. SOMERSET [5] Staplegrove, 28.8 (JMc). N. SOMERSET [6] Burnham-on-Sea, 25.6 (2) (A. Slade). DORSET [9] Cheyne Wears, Portland, 4.7 (SPC); Durlston, 26.6 (PAD, SN), 19.8 (2) (DCGB), 22.8 (PAD); Freshwater Bay, Portland, 23.8 (JEC, J. Spence); Portland Bird Observatory, 26.6, 13.8 (2), 23.8 (2) (MC per PAD); Preston, 27.6 (MF); Studland, 2.9 (DCGB); Upwey, 25.8 (PH); West Bexington, 26.6, 7.8, 13.8, 15.8, 27.8, 1.9, 4.9 (RE per PAD); Wyke Regis, 7.8, 23.8 (DF). ISLE OF WIGHT [10] Bonchurch, 11.8 (JH); Freshwater, 26.6 (DBW); Totland, 8.7 (SAK-J). S. HAMPSHIRE [11] Beaulieu, 10.8 (B. Ivon-Jones per TN); Southsea, 8.8, 12.8 (JRL per TN). N. HAMPSHIRE [12] Nr. Andover, 9.8 (TN). W. SUSSEX [13] Kingsham, m

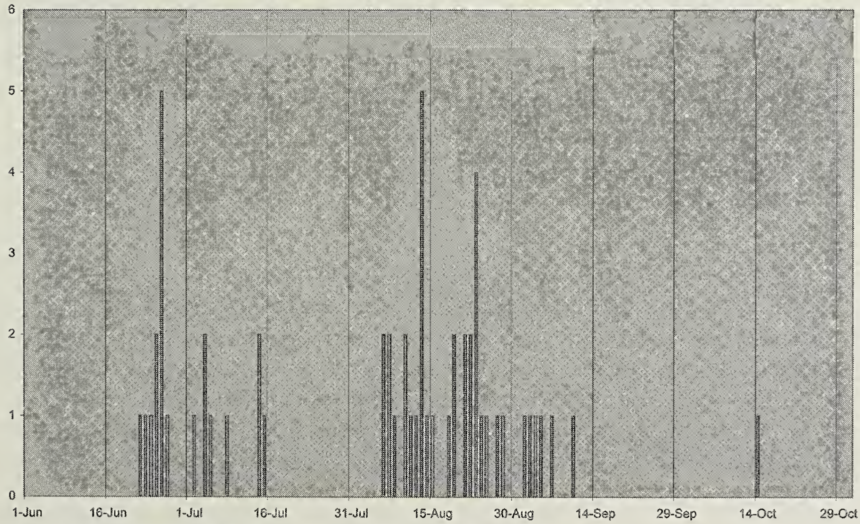

Fig. 11. Occurrence times of *Trichoplusia ni* during 2003 (dated records).

14.7 (SJP per CRP); Lyminster, 14.8 (R.E. Pratt per CRP). E. SUSSEX **[14]** Winchelsea, 5.7 (JEC, J. Spence per CRP). E. KENT **[15]** Dymchurch, 18.8 (JO); Kingsgate, 23.6, 15.7 (FS); New Romney, 13.8 (KR). W. KENT **[16]** Halstead, 24.6 (J. East). S. ESSEX **[18]** Bradwell-on-Sea, 21.8 (Dewick, 2004). BERKSHIRE **[22]** Fernham, 13.8 (SN). W. NORFOLK **[28]** Holme-next-the-Sea, 22.8 (P. Clarke per DH). GLAMORGAN **[41]** Roath, Cardiff, 3.9 (DRWG). CARMARTHENSHIRE **[44]** Pembry, 2.7, 24.8 (J. Baker). S. LANCASHIRE **[59]** Orrell, 21.8 (P. Alker per SMP).
W. CORK **[H3]** Crookhaven, 14-19.9 (Allen & Mellon, 2004). WICKLOW **[H20]** Ashford, 10.9 (AT).

2433 ***Trysanoplusia orichalcea*** **(Frey.) Slender Burnished Brass [I][In]**
W. CORNWALL **[1]** Church Cove, The Lizard, 18.11 (Tunmore, 2004); IOS: St Agnes, 7.8 (MEH), 12.10 (MEH per AD); [latter record incorrectly given as 23.10 in Hicks, 2004].

2436 ***Macdunnoughia confusa*** **(Steph.) Dewick's Plusia [I][In]**
DORSET **[9]** Portland Bird Observatory, 28.6 (MC); Upwey, 9.9 (PH); Weymouth, 17.9 (PHS). S. HANTS **[11]** Catherington, 26.8 (RJM per TN); Lymington, 5.9 (Harmer, 2004); Southsea, 1.9 (IRT). E. KENT **[15]** Dungeness, 21.9 (DW).

2444 ***Autographa bractea*** **(D. & S.) Gold Spangle [R][V/I]**
E. NORFOLK **[27]** Stiffkey, 5.8 (T. Crafer per DH). S.E. YORKSHIRE **[61]** Kilnsea, 26.7 (BRS); Spurn, 10.7 (BRS).

2451 ***Catocala fraxini*** **(L.) Clifden Nonpareil [I][FR]**
W. CORNWALL **[1]** IOS: St Mary's, Longstone, 11.9, new to the Scillies (Scott, 2004a).
[There were also unconfirmed records from Southend **[18]** on 3.9 (R. Mullins per SN); and Maidenhead **[22]** on 14.9 (J. Hawksley per THF).]

2465 ***Tyta luctuosa*** **(D. & S.) Four-spotted [R][I/V]**
E. KENT **[15]** New Romney, 17.7 (SPC).

2475 ***Parascotia fuliginaria*** **(L.) Waved Black [R][I/V]**
E. KENT **[15]** New Romney, 26.6, 15.7 (SPC), 12.7, 22.7 (KR).

2474 ***Rivula sericealis*** **(Scop.) Straw Dot [R][V/I]**
The following records may relate to immigrants.
DORSET **[9]** Merley, 4-8.8 (411) (J. Hammick); Shapwick, 21.9 (46) (PAD); Woolland, 10.8 (60), 20.9 (16) (P. Benham). S.E. YORKSHIRE **[61]** Kilnsea, 22.6 (PAC), 26.7 (BRS); Spurn and Kilnsea, 3.8 - 12.8 (37) (BRS); Spurn, 21.9 (BRS).

2478 ***Hypena obsitalis*** **(Hb.) Bloxworth Snout [R][V/I]**
Records outside the known breeding range, most likely to relate to internal vagrancy.
W. CORNWALL **[1]** Church Cove, The Lizard, 10.10 (Tunmore, 2004); Gerrans, 27.7 (A. Kershaw per SN); Mylor Churchtown, November, found in shed (Cooke, 2004). DORSET **[9]** Easton, Portland, 5.9 (RL); Portland Bird Observatory, 9.8 (MC); West Bexington, 4.9 (Eden, 2004). ISLE OF WIGHT **[10]** Bonchurch, 8.8 (JH).

2488a ***Pechipogo plumigeralis*** **(Hb.) Plumed fan-foot [I]**
E. KENT **[15]** Greatstone, 10.10 (BB); Kingsgate, 1.8 (FS).

2495 ***Trisateles emortualis*** **(D. & S.) Olive Crescent [R][I]**
DORSET **[9]** Portland Bird Observatory, 15.7 (Cade, 2004). E. SUSSEX **[14]** Rye Harbour, 6.8 (B. Yates per CRP).

ANNEX 2: SELECTED RECORDS OF COMMONER MIGRANT SPECIES IN 2003

Detailed statistics are not provided for the diurnal species listed in Annex 2 due to the generalised, non-specific nature of reports of these species from several key sites. Significant records, site totals and general comments have been given for these species, but it is to be hoped that numerical occurrence records and monthly totals will be more widely available in future seasons. For the same reason, the totals given in the tables for partially diurnal species such as *Plutella xylostella* and *Autographa gamma* refer to light-trap records only where records are detailed more systematically. It has also not been possible to allocate months of occurrence to all

the records of nocturnal Annex 2 species reported. It is therefore generally the case that the total given for the number of reported records is greater than the sum of the monthly totals given within the tables.

Whilst it is likely that the records included in the tables will not be comprehensive for the commoner species, the geographical and chronological occurrence patterns presented should reflect the overall picture for each species.

Key to the symbols used within the distribution tables:

SW **South-west England (VC's 1-4).**
CS **Central southern England (coastal) (VC's 5, 6, 9-11, 13).**
SE **South-east England (coastal) (VC's 14-16, 18, 19).**
EA **East Anglia & Lincolnshire (VC's 25-28, 53, 54).**
SI **Southern England (inland) (VC's 7, 8, 12, 17, 20-24, 29-34).**
W **Wales (VC's 35, 41-52).**
CE **Central England (inland) (VC's 36-40, 53-58).**
NE **North-east England (VC's 61, 62, 66-68).**
NW **North-west England & the Isle of Man (VC's 59, 60, 63-65, 69-71).**
S **Scotland (VC's 72-112).**
I **Ireland (VC's H1-H40).**

YPONOMEUTIDAE

0464 *Plutella xylostella* **(L.) [R][I]**
Total no. reported (light-trap records only): 18447
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
1181	7479	6537	1349	737	170	479	158	123	52	182

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	3	22	107	169	1398	2183	646	202	158	117	6

Selected annual totals from fixed traps: W. CORNWALL **[1]** IOS: St Agnes – 274 (Hicks, 2003); IOS: St Mary's, Longstone – 613 (Scott, 2004a). S. DEVON **[3]** Starcross – 118 (Rothamsted Trap) (AHD). DORSET **[9]** Portland Bird Observatory – 2494 (Cade, 2004); West Bexington – 348 (Eden, 2004). W. SUSSEX **[13]** Kingsham – 2914 (Patton, 2004). E. SUSSEX **[14]** Peacehaven – 251 (Pratt, 2004). E. KENT **[15]** Isle of Thanet – 4876 at three sites (FS); Kingsdown – 311 (Jarman, 2004). HERTFORDSHIRE **[20]** Hertford – 81 (AW per CWP). E. NORFOLK **[27]** Eccles-on-Sea – 342 (Bowman, 2004). N. NORTHUMBERLAND **[68]** Whitley Bay – 48 (per KR^2).
Ealiest dates: W. CORNWALL **[1]** IOS: St Mary's, Longstone, 25.3 (Scott, 2004a). DORSET **[9]** Portland Bird Observatory, 22.3 (Cade, 2004); West Bexington, 26.3 (Eden, 2004). ISLE OF WIGHT **[10]** Bonchurch, 26.3 (JH). W. SUSSEX **[13]** Kingsham, 26.3 (Patton, 2004). BUCKINGHAMSHIRE **[24]** Near Milton Keynes, 21.2, indoors (LH). GLAMORGAN **[41]** Gower, 27.3 (Gilmore, 2004). W. LANCASHIRE **[60]** Heysham, 27.3 (J. Holding per SMP). WICKLOW **[H20]** Ashford, 8.2, 25.2, 24.3 (AT).
Latest dates: DORSET **[9]** Portland Bird Observatory, 23.12 (MC). E. KENT **[15]** Thanet, 1.12 (Solly, 2004). N. ESSEX **[19]** Dovercourt, 3.12 (CG). S. LANCASHIRE **[59]** Parr, 4.12 (R. Banks per SMP). DURHAM **[66]** Marske, 4.12 (D. Money per SN).
Large single night counts: W. CORNWALL **[1]** IOS: St Mary's, Longstone, 5.7 (84) (Scott, 2004a). DORSET **[9]** Portland Bird Observatory, 10.8 (249) (Cade, 2004). W. SUSSEX **[13]** Kingsham, 26.6 (178); 19.7 (343) (SJP); Pagham, 2.6 (150) (SN). E. KENT **[15]** Kingsgate, 19.7 (309) (FS). E. SUFFOLK **[25]** Landguard Bird Observatory, 3.6 (236) (Odin, 2004). E. NORFOLK **[27]** Eccles-on-Sea, 3.7 (73) (Bowman, 2004).
Large diurnal counts: S.E. YORKSHIRE **[61]** Spurn, 'hundreds' for a few days in mid-July (BRS).

Most northerly records: N. EBUDES [**104**] Raasay, 31.5 (S. Bradley per PC). SHETLAND ISLANDS [**112**] general VC, 'reasonable numbers' from 13.6 (anon.); Eswick, 19.5 (6), 20.5 (12), 28.5 (4) (TR); Foula 19.7, 'abundant', 30.7 (2) (G. & D. Atherton); Unst, 3.6, several by day (anon.).

PYRALIDAE

1395 *Udea ferrugalis* **(Hb.) [I]**
Total no. reported: 14311
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
6780	6179	878	72	92	125	26	6	16	1	138

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	1	-	7	72	373	566	4937	883	1827	1023	125

Selected annual totals from fixed traps: W. CORNWALL [**1**] IOS: St Agnes - 833 (MEH, AD); IOS: St Mary's, Longstone – 4406 (Scott, 2004a); The Lizard – 1388 at three sites (Tunmore, 2004). S. DEVON [**3**] Starcross – 78 (Rothamsted Trap) (AHD). DORSET [**9**] Bridport area – 563 at two sites (Parsons & Brereton, 2004); Portland Bird Observatory – 1211 (Cade, 2004); West Bexington – 1572 (Eden, 2004). ISLE OF WIGHT [**10**] Approximate Island total – 2000 (Knill-Jones, 2004); Totland – 556 (SAK-J). W. SUSSEX [**13**] Selsey – 283 at two sites (Patton, 2004). E. SUSSEX [**14**] Elms Farm, Icklesham – 100 (Hunter, 2004); Peacehaven – 121 (Pratt, 2004). E. KENT [**15**] Dungeness area – 320+ at seven sites (Clancy, 2004); Isle of Thanet – 162 at three sites (FS). S. ESSEX [**18**] Bradwell-on-Sea – 148 (Dewick, 2004). PEMBROKESHIRE [**45**] Skomer Island – 60 (Hayden, 2004). WEXFORD [**H12**] Tacumshin area, 22-24.8 (69) (Allen, 2004).
Ealiest dates: W. CORNWALL [**1**] St Mary's, Longstone, 26.2 (Scott, 2004a).
Latest dates: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 24.12 (Scott, 2004a). E. CORNWALL [**2**] Bodelva, 24.12 (2) (Gregory, 2004). DORSET [**9**] Walditch, 27.12 (MSP). ISLE OF WIGHT [**10**] Freshwater, 24.12 (SAK-J).
Large single night counts: W. CORNWALL [**1**] IOS: St Agnes, 13.10 (55) (Davison, 2004); IOS: St Mary's, Longstone, 4.11 (82), 18.12 (34) (MAS). DORSET [**9**] Portland Bird Observatory, 12.8 (87) (Cade, 2004).
Most northerly records: S. LANCASHIRE [**59**] Skelmersdale, 4.12 (C. Darbyshire per SMP). W. LANCASHIRE [**60**] St. Annes, 14.6 (J. Steeden per SMP). S.E. YORKSHIRE [**61**] Kilnsea, 15.8 (PAC); Spurn 10.8, 20.8, 8.9 (2) (BRS). N. NORTHUMBERLAND [**68**] Nunnykirk, near Longhorsley, 7.9 (per KR^2). ISLE OF MAN [**71**] Ballaugh, 23.8 (2) (per GDC); Knocksharry, 19.8, 21.8, 26.8 (per GDC); South Barrule, 25.8 (per GDC). ROXBURGHSHIRE [**80**] Harestanes, near Jedburgh, 3.9 (JW *et al*).
Selected inland records: SURREY [**17**] South Croydon, 13.7 (GAC); Weybridge, 10.8 (A.R. Mitchell per GAC). HERTFORDSHIRE [**20**] Astonbury Wood, 16.6 (CWP); Bishops Stortford, 16.8, 18.8, 21.8, 22.8, 9.11, 17.11 (JF, CWP); Hertford, 12.8, 23.8, 20.11 (AW per CWP); Ware, 9.11 (EG per CWP). MIDDLESEX [**21**] Regent's Park, 12.8 (THF). BERKSHIRE [**22**] Dry Sandford, 12.7, 3.8, 10.8 (2), 22.8 (2), 5.9 (AK). HUNTINGDONSHIRE [**31**] Hilton, 4.11 (BD); Kimbolton, 18.9 (BD); St Ives, 25.8 (BD); Woodwalton Fen, 22.8 (2), 19.9 (BD); Yaxley, 23.8 (A. Frost per BD). LEICESTERSHIRE [**55**] Clipsham Quarry, 9.8 (APR); Great Easton, 26.8 (J.M. Harvey per APR); Loddington, undated, five during the year (RIS per APR); Markfield, 23.8 (AJM per APR); Pickworth, 16.8 (APR); Rutland Water, 23.8 (RIS per APR); Whetstone, 15.8, 17.8 (2) (MPS per APR). NOTTINGHAMSHIRE [**56**] South Muskham, 14.8 (DA, MK); Sutton-on-Trent, 20.11 (MK). CHESHIRE [**58**] Alsager, 7.9 (M. Dale per SF); Bramhall, 22.8 (A. Charlton per SF). ROXBURGHSHIRE [**80**] Harestanes, near Jedburgh, 3.9 (JW *et al*).

1398 *Nomophila noctuella* **(D. & S.) [I]**
Total no. reported: 127799
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
45110	59610	13082	2414	1829	259	315	962	1860	31	2227

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	-	6	10	90	1595	3232	15486	44822	4993	232	3

Selected annual totals from fixed traps: W. CORNWALL [**1**] IOS: St Agnes – 13300+ (Hicks, 2004), 11-16.10 – 462 (Davison, 2004); IOS: St Mary's, Longstone - 21876 (Scott, 2004a); The Lizard – 2043 at three sites (Tunmore, 2004). DORSET [**9**] Bridport area – 1453 at two sites (Parsons & Brereton, 2004); Portland Bird Observatory – 26566 (Cade, 2004); West Bexington – 7765 (Eden, 2004). ISLE OF WIGHT [**10**] Approximate Island total – 10000 (Knill-Jones, 2004); Totland – 3700 (SAK-J). W. SUSSEX [**13**] Kingsham - 5256 (Patton, 2004). E. SUSSEX [**14**] Peacehaven – 2852 (Pratt, 2004); Elms Farm, Icklesham – 2047 (Hunter, 2004). E. KENT [**15**] Dungeness area – 3557+ at three sites (per SPC); Isle of Thanet – 2960 at three sites (FS). S. ESSEX [**18**] Bradwell-on-Sea – 1116 (Dewick, 2004). E. SUFFOLK [**25**] Landguard Bird Observatory – 1220 (Odin, 2004). E. NORFOLK [**27**] Eccles-on-Sea – 468 (Bowman, 2004). S.E. YORKSHIRE [**61**] Spurn area – 922 at three sites (BRS, PAC). WICKLOW [**H20**] Ashford – 928 (AT). W. CORK [**H3**] Crookhaven, 14-19.9 (901) (Allen & Mellon, 2004).
Ealiest dates: W. CORNWALL [**1**] IOS: St Agnes, 5.4 (Hicks, 2004). E. CORNWALL [**2**] Looe, 26.3 (TS). DORSET [**9**] Portland Bird Observatory, 25.3 (Cade, 2004); West Bexington, 28.3 (Eden, 2004). W. SUSSEX [**13**] Kingsham, 28.3 (Patton, 2004).
Latest dates: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 30.11 (Scott, 2004a). N. WILTSHIRE [**7**] Highworth, 3.12 (SN). S. ESSEX [**18**] Bradwell-on-Sea, 4.12 (Dewick, 2004). WICKLOW [**H20**] Ashford, 24.12 (AT).
Large single night counts: W. CORNWALL [**1**] IOS: St Agnes, 25.9 (c.4000) (Hicks, 2004), 13.10 (176) (Davison, 2004); IOS: St Mary's, Longstone, 16.6 (198), 5.8 (232), 17.9 (4600) (MAS). DORSET [**9**] Portland Bird Observatory, 5.9 (5500) (Cade, 2004). S. HAMPSHIRE [**11**] Portchester, 7.8 (150) (JS). W. SUSSEX [**13**] Kingsham, 6.8 (259) (SJP). E. SUSSEX [**14**] Elms Farm, Icklesham, 12.8 (232), 17.9 (136) (Hunter, 2004). E. KENT [**15**] Dungeness area, 21.9 (659, at three sites) (per SPC); Kingsgate, 2.10 (147) (FS). S. ESSEX [**18**] Bradwell-on-Sea, 5.9 (115) (Dewick, 2004). E. SUFFOLK [**25**] Landguard Bird Observatory, 2.10 (343) (Odin, 2004). ISLE OF MAN [**71**] Dhoon Maughold, 14.9 (1000+) (per GDC). W. CORK [**H3**] Cape Clear Island, 13.10 (68) (per KB). WICKLOW [**H20**] Ashford, 10.9 (89) (AT).
Large diurnal counts: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 9.5 – 30.11 (6834) (Scott, 2004a).
Most northerly records: N. EBUDES [**104**] Raasay, 31.5 (S. Bradley per PC). SHETLAND ISLANDS [**112**] Eswick, 19-29.5 (11), 16.8 (TR); Foula, 19.7 (G. & D. Atherton); Ocraquoy, 7.9 (anon.).
Selected inland records: HERTFORDSHIRE [**20**] 203 adults recorded across the county, 11.6 – 19.11 (per CWP). MIDDLESEX [**21**] Regent's Park, 12.8 (75) (THF). BERKSHIRE [**22**] Dry Sandford, 13.6, recorded frequently thereafter (AK). CAMBRIDGESHIRE [**29**] Wicken, recorded commonly through September (DEW). HUNTINGDONSHIRE [**31**] 65 adults recorded across the county, 13.6 – 14.10 (per BD). LEICESTERSHIRE [**55**] 225+ adults recorded across the county, 8.7 – 19.10 (per APR). NOTTINGHAMSHIRE [**56**] Girton, 8.8 (DA); South Muskham, 6.8, 14.8, 17.9, 18.9, 4.10 (DA, MK); Sutton-on-Trent, 20.7, 5.8 (3), 7.8, 12.8, 22.9 (MK). CHESHIRE [**58**] Alsager, 24.8 – 3.10 (24) (M. Dale per SF); Bramhall, 14-19.9 (4) (A. Charlton per SF); Gawsworth, 20.9 (SHH); Higher Poynton, 17.8 (2) (SHH); Romiley, 10-23.8 (4), 11.10 (SF). ROXBURGHSHIRE [**80**] Allan Water, near Hawick, 14.5, 14.8 (JW); Bonavista, near Galashiels, 15.9 (JW); Caverton, near Kelso, 18.9, 19.9 (2) (T. Alampo per JW).
Offshore record: A single moth at rest on a fishing boat c.5 miles south of Brighton [**14**], 3.9, at c.10 a.m. (A. Batten per CRP).

PIERIDAE

1545 *Colias croceus* (Geoff.) **Clouded Yellow [I][MC]**
Selected annual totals: W. CORNWALL [**1**] IOS: St Mary's – 178 (Scott, 2004a). S. HAMPSHIRE [**11**] Gosport – 391 (D. Tinling). E. SUSSEX [**14**] Elms Farm, Icklesham – 79 (IDH per CRP). S. ESSEX [**18**] Bradwell-on-Sea – 40 (Dewick, 2004). PEMBROKESHIRE [**45**] Skomer Island – 28 (Hayden, 2004). W. CORK [**H3**] Dursey Island – 64+ (Scott, 2004b).
Non-specific comments: W. CORNWALL [**1**] IOS: St Agnes, two seen in late June, and a small influx in September and into October (Hicks, 2004); The Lizard, small numbers seen regularly, particularly during the autumn (Tunmore, 2004). DORSET [**9**] Portland, 2.8 – 27.11, almost daily (Cade, 2004). ISLE OF WIGHT [**10**] Bonchurch, 3.8, a number seen coming in off the sea (JH). S.E. YORKSHIRE

[61] Spurn, 27.7 – 9.8 (1-3 most days), 9.9, 17.9, 1.10, 2.10 (Spence, 2003).

Earliest dates: W. CORNWALL **[1]** near St Austell, 3.4, 4.4 (per RL). S. DEVON **[3]** Weston Coombe, 5.4 (R.M. Hill). ISLE OF WIGHT **[10]** First week of April (several) (Knill-Jones, 2004).

Latest dates: E. CORNWALL **[2]** Seaton, 4.12 (3) (L. Truscott). DORSET **[9]** Portland, 27.11 (Cade, 2004). ISLE OF WIGHT **[10]** Ventnor, 27.12 (A. Butler per SAK-J); Wheelers Bay, 27.11 (Knill-Jones, 2004). S. HAMPSHIRE **[11]** Gosport, 26.11, 27.11 (3), 28.11 (2) (D. Tinling).

Large counts: DORSET **[9]** Portland, October (20 on several dates) (Cade, 2004). S. HAMPSHIRE **[11]** Gosport, 17.10 (47) (D. Tinling). W. SUSSEX **[13]** Thorney Island, 3.10 (23) (T. Wilson per CRP). E. SUSSEX **[14]** Cuckmere Valley, 18.10 (24) (DB per CRP). E. NORFOLK **[27]** Nr. Hockwold, 2.8 (20+), in a Lucerne field (P. Laurie). W. CORK **[H3]** Dursey Island, 26.9 (29) (Scott, 2004b).

Most northerly records: ISLE OF MAN **[71]** Dhoon Maughold, 15.7 (per GDC).

Selected inland records: SURREY **[17]** Camberley, 15.9 (GAC); Chiddingfold, 17.10 (GAC); Lambeth Reservoir, 26.7 (3) (S.J. Spooner per SN). MIDDLESEX **[21]** Tottenham Marshes, 31.5 (per L. Goodyear via SN). CAMBRIDGESHIRE **[29]** Wicken, 15.10 (2) (DEW). HUNTINGDONSHIRE **[31]** Bluntisham Fen, 3.8, 29.8, 31.8 (B & J. Milne per BD); near Hemmingford Abbots, 17.8 (M. Everett per BD); near Huntingdon, 20.7 (B & J. Milne per BD), 25.9 (S. Smith per BD); Orton Southgate, 4.9 (N. Crossman per BD); near Peterborough, 2.8, 14.9 (A. Frost per BD); Sapley, 2.8 (NG-D per BD); St Ives, 6.7 (B & J. Milne per BD); near St Neots, 21.7 (J. Stevenson per BD); Warboys, 15.6 (P. Rowlings per BD); Weaveley Wood, 2.8 (A. Booth per BD). WORCESTERSHIRE **[37]** Nr. Longbridge, 3.8 (R. Wardle). WARWICKSHIRE **[38]** Nr. Newbold upon Stour, 3.8 (2) (N. Stone). LEICESTERSHIRE **[55]** 25+ adults recorded across the county, 6.5 – 3.9 (per APR). CHESHIRE **[58]** Nr. Northwich, 29.5 (S. Hefferan per SF). S.W. YORKSHIRE **[63]** Uppermill, 13.9 (P.B. Hardy per SHH).

Evidence of breeding: S.E. YORKSHIRE **[61]** Spurn Point, 27.7, ovipositing female (C. Bowler per SN).

NYMPHALIDAE

1590 ***Vanessa atalanta*** **(L.) Red Admiral [R][I]**

Selected annual totals: W. CORNWALL **[1]** IOS: St Mary's, Longstone – 1256 (Scott, 2004a). DORSET **[9]** West Bexington – 193 (Eden, 2004). E. SUSSEX **[14]** Peacehaven - 497 (Pratt, 2004). S. ESSEX **[18]** Bradwell-on-Sea – 2684 (Dewick, 2004). PEMBROKESHIRE **[45]** Skomer Island – 4545 (Hayden, 2004). CHESHIRE **[58]** County total – 699 (per SF). BANFFSHIRE **[94]** Ordiquhill – 121 (RL^2).

Earliest dates (active): E. CORNWALL **[2]** Delabole, 16.1 (anon.). S. HAMPSHIRE **[11]** Colden Common, 16.1 (R. Rowe); Portchester, 16.1 (JS). N. HAMPSHIRE **[12]** Hook, 16.1 (A. McCue). W. CORK **[H3]** Near Schull, 4.1 (N. Addey per IR). ANTRIM **[H39]** Belfast, 16.1 (G. Saunders per IR).

Latest dates (active): Bochym, The Lizard, 17.12 (Tunmore, 2004). DORSET **[9]** Bridport, 18.12 (per MSP). S. HAMPSHIRE **[11]** Gosport, 21.12 (D. Tinling). MIDDLESEX **[21]** Alexandra Palace, Wood Green, 18.12 (M. Conway). W. SUSSEX **[13]** Selsey, 18.12 (SJP). E. SUSSEX **[14]** Seaford. 17.12 (2) (S. Fletcher per SN).

Large counts: W. CORNWALL **[1]** IOS: St Mary's, Longstone, 30.8 (170) (Scott, 2004a). S.E. YORKSHIRE **[61]** Spurn, 24.9 (250) (BRS). S. ESSEX **[18]** Bradwell-on-Sea, 31.7 (115), 2.8 (116) (Dewick, 2004). PEMBROKESHIRE **[45]** Skomer Island, 25.8 (1500) (Hayden, 2004). W. CORK **[H3]** Dursey Island, 26.9 (120) (Scott, 2004b).

Light-trap records: W. CORNWALL **[1]** IOS: St Mary's, Longstone, 30.6 – 18.10 (33), including 13 on 27.9 (Scott, 2004a); The Lizard, August (1), September (5) (Tunmore, 2004). S. DEVON **[3]** Branscombe, 14.6 (BPH, RFM). DORSET **[9]** Portland Bird Observatory, 30.6 – 29.9 (12) (Cade, 2004). S. ESSEX **[18]** Bradwell-on-Sea, 1.8, 5.8 (2), 6.8, 10.8, 12.8 (2), 13.8, 16.8, 10.9, 20.9, 1.10 (Dewick, 2004).

Immature stages/Evidence of breeding: W. CORNWALL **[1]** Mevagissey, 25.10, pair *in cop.* (Ofield, 2004). BANFFSHIRE **[94]** Nr. Macduff, 23.7, larvae abundant (RL^2).

1591 ***Vanessa cardui*** **(L.) Painted Lady [I]**

Selected annual totals: W. CORNWALL **[1]** IOS: St Mary's, Longstone – 995 (Scott, 2004a). DORSET **[9]** West Bexington – 137 (Eden, 2004). E. SUSSEX **[14]** Peacehaven - 215 (CRP). E. KENT **[15]** Dungeness Bird Observatory – 1048 (DW). S. ESSEX **[18]** Bradwell-on-Sea – 5240 (Dewick, 2004). PEMBROKESHIRE **[45]** Skomer Island – 6791 (Hayden, 2004). CHESHIRE **[58]** County total – 461 (per SF).

Earliest dates (active): W. CORNWALL **[1]** The Lizard, 17.3 (Tunmore, 2004). E. CORNWALL **[2]** Near Torpoint, 16.3 (2) (D. Allen). S. DEVON **[3]** Plymouth, 12.3 (VT), 14.3 (2) (S. Coombes); Stoke Point, 15.3 (6), 16.3 (VT). S. SOMERSET **[5]** Taunton, 13.3 (M. Ridge). DORSET **[9]** St Aldhelm's

Head, 17.3 (RL); West Bexington, 14.3 (Eden, 2004). E. KENT **[15]** Isle of Thanet, 24.3 (Solly, 2004). W. CORK **[H3]** Dursey Island, 12.3 (Scott, 2004b).

Latest dates (active): W. CORNWALL **[1]** IOS: St Mary's, Longstone, 9.11 (Scott, 2004a). S. DEVON **[3]** Buckfastleigh, 10.11 (B&LB per RFM). E. SUSSEX **[14]** Elms Farm, Icklesham, 4.11 (Hunter, 2004). E. KENT **[15]** Isle of Thanet, 4.11 (Solly, 2004).

Large counts: W. CORNWALL **[1]** IOS: St Mary's, Longstone, 31.8 (100) (Scott, 2004a). S. DEVON **[3]** Between Start Point & Torcross, 28.6 (300+) (M. Catt). DORSET **[9]** Portland, June (100+ on many dates), August (many hundreds daily) (Cade, 2004). W. SUSSEX **[13]** Pagham, 24.7 (large numbers, inc. 100+ in one field) (SJP); Pulborough, 26.7 (c.200) (per CRP). E. SUSSEX **[14]** Elms Farm, Icklesham, 22.7 (c.150,000) (Hunter, 2004); Hollingbury, 3.8 (c.200) (per CRP). E. KENT **[15]** Oare, 20.7 (c.200) (S. Nunn per ME); Ramsgate Hoverport, 31.7 (c.2000) (Solly, 2004); Sandwich, 2.8 (104 on transect) (P. Forrest); Thanet, 3.8 (182 at two sites) (S. Blaskett per ME). S. ESSEX **[18]** Bradwell-on-Sea, 27.7 (415), 28.7 (577), 29.7 (627), 30.7 (658), 31.7 (646) (Dewick, 2004). N. ESSEX **[19]** Nr. Halstead, 26.7 (500) (per SN); Markshall, 29.7 (789) (D. Owen); Marks Tey, 24.7 (several hundred) (N. Harvey); Walton-on-the-Naze, 28.7 (277) (D. Owen). E. SUFFOLK **[25]** Aldeburgh, 3.6 (100 in one field) (per RP); (Bawdsey, 27.7 (360) (C.A. Jacobs); Culpho, nr. Ipswich, 1.6 (400) (per RP); Landguard, 3.6 (150) (per SHP); Thorpeness, 2.6 (200) (C.A. Jacobs). E. NORFOLK **[27]** Nr. Hockwold, 2.8 (8000), in a Lucerne field (P. Laurie). N. LINCOLNSHIRE **[54]** Gibraltar Point, 28.7 (300+) (Sykes, 2004). S.E. YORKSHIRE **[61]** Spurn, 2.6 (140), 16.7 (169), 2.8 (475), 12.9 (420) (BRS). PEMBROKESHIRE **[45]** Skomer Island, 25.8 (3000) (Hayden, 2004). LEICESTERSHIRE **[55]** Edith Weston, 2.8 (c.200) (V. Arnold). NOTTINGHAMSHIRE **[56]** Eakring, 3.8, (715) (T. Pendleton). W. CORK **[H3]** Dursey Island, 26.9 (120) (Scott, 2004b).

Light-trap records: W. CORNWALL **[1]** IOS: St Mary's, Longstone, 5.7 – 25.9 (7), including four on 6.8 (Scott, 2004a); The Lizard, 23.3, September (3) (Tunmore, 2004). S. DEVON **[3]** Branscombe, 14.6 (BPH, RFM). DORSET **[9]** Portland Bird Observatory, 1.8 – 25.9 (4) (MC). S. ESSEX **[18]** Bradwell-on-Sea, 30.7 (4), 1.8 (2), 2.8 (4), 3.8, 4.8, 5.8, 6.8 (2) (Dewick, 2004). HUNTINGDONSHIRE **[31]** Woodwalton Fen, 2.8 (BD). ISLE OF MAN **[71]** Dhoon Maughold, 2.9 (per GDC).

Immature stages: W. CORNWALL **[1]** Crantock, 11.7, larva on *Borago officinalis* (KNAA). S. DEVON **[3]** South Milton Sands, 16.8, two larvae on *Arctium* spp. (BPH). DORSET **[9]** West Lulworth, 18.7, larva on *Arctium minus* (DH[2] per SPC). ISLE OF WIGHT **[10]** Bonchurch, larvae in June (JH). E. SUSSEX **[14]** Rye Harbour, July, undated, larva on *Artemisia vulgaris* (DB per SPC). E. KENT **[15]** Dungeness, 17.7, larva on *Plantago lanceolata* (SPC). SURREY **[17]** Guildford, 10.6, larva (GAC). MIDDLESEX **[21]** Shepperton, 21.7, larva (GAC). CAMBRIDGESHIRE **[29]** Wicken, July & August, larvae common (DEW). HUNTINGDONSHIRE **[31]** Bluntisham Fen, 14.6, larva(e) (B & J. Milne per BD). LEICESTERSHIRE **[55]** Empingham, 11.8, larvae (M.W. Tyler per APR). CHESHIRE **[58]** Manchester airport, 25.6, larva (I.F. Smith per SF); West Kirby, 7.7, larva (I.F. Smith per SF). BANFFSHIRE **[94]** Ordiquhill, 24.8, larva and vacated webs (RL[2]). SHETLAND ISLANDS **[112]** Norwick, 13.8, larva (M. Mouat).

GEOMETRIDAE

1716 ***Rhodometra sacraria*** **(L.) Vestal [I]**
Total no. reported: 1067
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
627	283	66	5	24	18	13	1	4	-	26

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	-	-	-	-	14	17	165	432	252	14	-

Selected annual totals from fixed traps: W. CORNWALL **[1]** IOS: St Agnes – 140 (MEH, AD); IOS: St Mary's, Longstone – 264 (Scott, 2004a); The Lizard – 109 at three sites (Tunmore, 2004). DORSET **[9]** Bridport area – 45 at two sites (Parsons & Brereton, 2004); Portland Bird Observatory – 40 (Cade, 2004); West Bexington – 29 (Eden, 2004). ISLE OF WIGHT **[10]** Approximate Island total – 30 (Knill-Jones, 2004). W. SUSSEX **[13]** Selsey – 24 at three sites (Patton, 2004); Walberton – 20 (JTR per CRP). E. KENT **[15]** Dungeness area – 20 at eight sites (per SPC).

Ealiest dates: W. CORNWALL **[1]** IOS: St Mary's, Longstone, 27.6 (Scott, 2004a). N. DEVON **[4]** Bideford, 26.6 (2) (ASH per RFM). DORSET **[9]** Preston, 26.6 (MF). ISLE OF WIGHT **[10]** Totland,

26.6 (SAK-J). E. KENT [15] New Romney, 26.6 (SPC); Isle of Thanet, 27.6 (Solly, 2004). WARWICKSHIRE [38] Charlecote, 22.6 (DCGB). GLAMORGAN [41] Mumbles, 25.6 (T. Bantock per SN). BRECONSHIRE [42] Newbridge-on-Wye, 24.6, by day (G. Tordoff per SN).

Latest dates: W. CORNWALL [1] IOS: St Mary's, Longstone, 20.11 (Scott, 2004a). WICKLOW [H20] Ashford, 17.11 (2) (AT).

Large single night counts: W. CORNWALL [1] Coverack, The Lizard, 12.10 (8) (DCGB); IOS: St Agnes, 12.10 (16), 13.10 (27) (Davison, 2004); IOS: St Mary's, Longstone, 30.8 (18), 12.10 (21) (Scott, 2004a).

Most northerly records: CHESHIRE [58] Halton, 17.9 (J.J. Clarke per SF). W. LANCASHIRE [60] Lightfoot Green, 18.9 (SMP). S.E. YORKSHIRE [61] Easington, 21.9 (M.J. Stoyle per BRS). ISLE OF MAN [71] Dhoon Maughold, 18.9, 22.9 (per GDC); Minorca Laxey, 24.9 (per GDC).

Selected inland records: N. HAMPSHIRE [12] Grateley, 20.9, 10.10, 14.10 (S. Colenutt per TN); Greywell, 26.9, 16.10 (P. Boswell per TN); Selborne, 20.9 (3), 1.10 (AEA). SURREY [17] Banstead, 6.8 (S.W. Gale per GAC); Ewell, 24.9 (GAC). S. ESSEX [18] Epping Forest, August, undated (T. Green per BG); Magdalen Laver, September, undated (T. Green per BG). N. ESSEX [19] Felsted, 21.7 (G. Geen per BG); Takeley, 22.9 (G. Sell per BG). HERTFORDSHIRE [20] Bishops Stortford, 21.9 (JF per CWP); Hertford, 21.9 (AW per CWP); Ware, 20.9 (EG per CWP). BERKSHIRE [22] Dry Sandford, 21.9 (AK); Fernham, 2.7, 3.8 (SN). CAMBRIDGESHIRE [29] Wicken, 30.9 (DEW). BEDFORDSHIRE [30] Cockayne Hatley, 5.9 (I.P. Woiwood per LH). HUNTINGDONSHIRE [31] Kimbolton, 17.10 (T. Parnell per BD). WARWICKSHIRE [38] Charlecote, 22.6, 17.8, 19-29.9 (4), 2.10, 13.10 (DCGB). LEICESTERSHIRE [55] Barrowden, 14.8 (R. Follows per APR); Dadlington, 9.10 (3) (R. Smith per APR); Eyebrook Reservoir, 2.8, 19.9 (R. Follows per APR).

1720 ***Orthonama obstipata*** **(Fab.) Gem [I]**
Total no. reported: 446
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
160	155	77	4	17	2	4	5	9	1	12

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	-	3	4	6	10	36	89	70	80	61	4

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: St Agnes – 43 (MEH, AD); IOS: St Mary's, Longstone – 67 (Scott, 2004a); The Lizard – 22 at three sites (Tunmore, 2004). DORSET [9] Portland Bird Observatory – 39 (Cade, 2004). ISLE OF WIGHT [10] Total from two sites – 14 (JH, SAK-J). W. SUSSEX [13] Walberton – 14 (JTR per CRP). E. KENT [15] Dungeness area – 32 at nine sites (per SPC).

Ealiest dates: W. CORNWALL [1] IOS: St Agnes, March, undated (2) (Hicks, 2004); IOS: St Mary's, Longstone, 28.3 (Scott, 2004a). CARMARTHENSHIRE [44] Wharley Point, 18.4 (J. Baker).

Latest dates: W. CORNWALL [1] IOS: St Agnes, December, undated (2) (Hicks, 2004); IOS: St Mary's, Longstone, 14.12, 18.12 (Scott, 2004a). DORSET [9] Walditch, 29.11 (MSP). W. SUSSEX [13] Walberton, 30.11 (JTR per CRP).

Large single night counts: W. CORNWALL [1] Coverack, The Lizard, 13.10 (12), 15.10 (5) (DCGB); IOS: St Agnes, 13.10 (5) (Davison, 2004); IOS: St Mary's, Longstone, 13.10 (6) (Scott, 2004a). DORSET [9] Portland, 5.9 (13) (MC); Studland, 5.9 (4) (DCGB). W. CORK [H3] Cape Clear Island, 12.10 (6) (per KB).

Most northerly records: S. LANCASHIRE [59] St Helens, 28.10 (C. Davies per SMP). S.E. YORKSHIRE [61] Kilnsea, 18.7 (PAC), 1.10 (BRS); Spurn 10.7, 2.10 (BRS). ISLE OF MAN [71] Dhoon Maughold, 1.9, 2.9, 18.9, 20.9, 30.9 (per GDC); Gob y Volley Ballaugh, 14.6 (per GDC). SHETLAND ISLANDS [112] Eswick, 12.11 (TR).

Selected inland records: N. HAMPSHIRE [12] Selborne, 4.6, 6.6, 14.8, 15.8 (AEA). E. SUSSEX [14] Crawley Down, 2.10, 19.11 (JHC per CRP). SURREY [17] Chobham, 15.7 (P.R. Wheeler per GAC); West Molesey, 2.7 (P.R. Williams per GAC). HERTFORDSHIRE [20] Bishops Stortford, 15.6 (JF, J. Reeves); Harpenden, 18.11 (PG per CWP); Long Marston, 26.6 (P. Bygate per CWP); Marshalls Heath, 2.7 (J. Murray). BERKSHIRE [22] Dry Sandford, 30.10 (AK). E. NORFOLK [27] Scole, 13.8 (M. Hall per DH). HUNTINGDONSHIRE [31] Grafham Water, 20.9 (BD); Huntingdon, 1.10, 3.10 (M. Shardlow per BD); Kings Ripton, 23.8 (D. Ritchie per BD); Yaxley, 5.9 (A. Frost per BD). WARWICKSHIRE [38] Hillmorton, Rugby, 4.8, 7.8 (D. Porter per DCGB). DERBYSHIRE [57]

Foremark Reservoir, 18.11 (Budworth *et al*, 2004). LEICESTERSHIRE [**55**] Braunstone, 7.5 (L. Holton per APR). S. LANCASHIRE [**59**] Chorlton, 18.11 (B. Smart per SMP). S.W. YORKSHIRE [**63**] Holdworth, Sheffield, 11.11 (K. Clarkson).

SPHINGIDAE

1972 *Agrius convolvuli* **(L.) Convolvulus Hawk-moth [I][In]**
Total no. adults reported: 2671
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
1361	763	277	74	31	35	27	20	21	34	28

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	-	-	-	-	7	27	659	602	71	2	-

Selected annual totals from fixed traps: W. CORNWALL [**1**] IOS: St Agnes – 140 (Hicks, 2004); IOS: St Mary's, Longstone – 172 (Scott, 2004a); IOS: St Mary's, August & September, island total – 1000+ (Scott, 2004a); The Lizard – 46 at three sites (Tunmore, 2004). DORSET [**9**] Portland Bird Observatory – 136 (Cade, 2004); Puddletown – 61 (HWH); West Bexington – 122 (Eden, 2004). ISLE OF WIGHT [**10**] Approximate Island total – 138 (Knill-Jones, 2004); Bonchurch – 40+ (JH); Totland – 35 (SAK-J). S. HAMPSHIRE [**11**] Wickham Common, Fareham – 11 (Coker, 2004). W. SUSSEX [**13**] Ferring – 11 (THF per CRP); Walberton – 10 (JTR per CRP). E. SUSSEX [**14**] Peacehaven – 14 (CRP). E. KENT [**15**] Dungeness area – 40 at twelve sites (per SPC); Isle of Thanet – 84 at seven sites (Solly, 2004). S. ESSEX [**18**] Bradwell-on-Sea – 24 (Dewick, 2004). S.E. YORKSHIRE [**61**] Spurn area – 8 at three sites (BRS, PAC). ISLE OF MAN [**71**] Island total – 17 (Craine, 2004). W. CORK [**H3**] Crookhaven, 14-19.9 (11) (Allen & Mellon, 2004).

Ealiest dates: W. CORNWALL [**1**] The Lizard, June, undated (Tunmore, 2004). N. DEVON [**4**] Hartland Point, 22.6 (BPH, RFM). DORSET [**9**] Durlston, 26.6 (PAD, SN); West Bexington, June (undated) (Eden, 2004). E. SUFFOLK [**25**] Landguard Bird Observatory, 17.6 (Odin, 2004). S.E. YORKSHIRE [**61**] Kilnsea, 29.6 (PAC).

Latest dates: W. SUSSEX [**13**] Ringmer, 30.10 (A. Batten per CRP). S. ESSEX [**18**] Rainham Marshes, 15.11 (N.R. Bruce-White per BG). NOTTINGHAMSHIRE [**56**] Kimberley, 8.11, found dead (I. Cook per JE).

Large single night counts: W. CORNWALL [**1**] IOS: St Agnes, 27.8 (24), late August, up to 10 feeding at *Oenothera biennis* flowers (Hicks, 2004); IOS: St Mary's, Longstone, 17.8 (11) (Scott, 2004a); IOS: St Mary's, late August, undated (30), feeding together at *Hedychium* spp. flowers (Scott, 2004a); St Dellan, near Penzance, 25.9 (6) (J. Yarnold per PHB). S. DEVON [**3**] Hope Cove, Kingsbridge, 11.8 – 6.9, up to 9 per night feeding at *Lonicera* spp. Flowers (K. Trout per RFM). DORSET [**9**] Durlston, 7.8 (17) (JMc), 5.9 (33) (DCGB), 19.9 (39) (SN). GLAMORGAN [**41**] Kenfig NNR, 23.8 (7) (Gilmore, 2004).

Most northerly records: N. ABERDEENSHIRE [**93**] Auchnagatt, 4.7 (C. Harlow); Huntly, 10.9 (per P. Shand via RL^2). BANFFSHIRE [**94**] Cornhill, 4.9 (J. McLeod per RL^2). MORAY [**95**] New Elgin, 11.9 (D. Jamieson per RL^2). SHETLAND ISLANDS [**112**] Burrafirth, 13.8 (anon.); Eswick, 8.8, 16.8 (T. Rogers); Fair Isle, 13.9 (anon.); Fetlar, 6.9 (2), 8.9 (2) (anon.), 10.9 (K. & M. Hughson); Foula, 1.8 (2), 5.8 (2), 26.8 (2), 27.8, 4.9 (G. & D. Atherton); Kirkadale, 13.8, by day (per R. Ditchburn); Lerwick, 15.8, 17.8 (anon.); Mid Yell, 11.9 (4+) (anon.); Norwick, 18.8 (W. & H. Laurenson); Unst, 22.8 (R. & W. Henderson); Urafirth, 18.8 (anon.); Whalsay, 16.9 (anon.).

Selected inland records: SURREY [**17**] Givons Grove, near Leatherhead, 14.8 (A.M.V. Hoare per GAC). HERTFORDSHIRE [**20**] Bishops Stortford, 20.9 (J. Horrocks per CWP); Long Marston, 14.8 (P. Bygate per CWP); Quickswood, 19.8 (E. May per CWP), 16.9 (D. Heath per CWP); Shenley, 30.8 (W & P. Page per CWP). MIDDLESEX [**21**] Alexandra Palace, 6.8 (G. Newbiggin per CWP). BERKSHIRE [**22**] Dry Sandford, 6.8, 26.8 (AK). BEDFORDSHIRE [**30**] Bedford, 30.8 (B. Anderson per LH); Haynes, 26.8 (S. Rowe per LH); Luton, 7.8, 15.8, 16.9 (H. Palmer per LH); Potton, 24.8 (A. Darrington per LH); Odell, 3.9 (H.A. Smith per LH); Whipsnade, 1.9 (C. Tack per LH). HUNTINGDONSHIRE [**31**] Abbots Ripton, 8.9 (C. Drage per BD); Easton, September, undated (B. Davis per BD); Houghton, 13.8 (per BD); Huntingdon, 10.9 (M. Abbot per BD); Kings Ripton, 5.9 (D. Ritchie per BD); Stow Longa, September, undated (W. Caress per BD). WARWICKSHIRE [**38**] Norton Lindsey, 31.8 (H. Cuttell per DCGB); Pillerton Priors, 18.8 (C. Ivin per DCGB). STAFFORDSHIRE

[39] Solihull, 4.8 (B. Moore per SN), West Bromwich, 4.8 (S. Flower per SN). LEICESTERSHIRE **[55]** Asfordby, 19.9 (A. Corley per APR); Barrowden, 26.8 (L. Worrall per APR); Birstall, 22.8 (J. Williams per APR); Cottesmore, August, undated (per APR); Earl Shilton, 15.8 (C. Baggott per APR); Fleckney, 16.9 (J.G. Cranfield per APR); Glen Parva, 14.8 (per APR); Goadby, 10.8, 12.8, 19.8 (per APR); Hinckley, 15.8 (D. Taylor per APR); Hugglescote, 2.10 (K.K. Ingram per APR); South Luffenham, 29.8 (L. Worrall per APR); Thorpe Satchville, 18.9 (F.J. Johnson per APR); Wigston, 20.8 (R. Felce per APR). NOTTINGHAMSHIRE **[56]** Edwinstowe, 15.7 (T. Barton per SW); Flintham, 8.9 (J. Lennon per SW); Kimberley, 8.11 (I. Cook per JE); Kirkby-in-Ashfield, 2.10 (S. Kelly per JE); South Leverton, 23.8 (Y. Winder per SW). DERBYSHIRE **[57]** Whitwell Wood, 23.8 (Budworth *et al*, 2004); Matlock, 21.9 (Budworth *et al*, 2004). W. LANCASHIRE **[60]** Colne, 7.8 (per SN). S.E. YORKSHIRE **[61]** Haxby, 24.9 (per TE); Hook, near Goole 7.9 (2) (R. Butcher per BRS). ARMAGH **[H37]** Portadown, 19.8 (D. Cornett per IR).

Immature stages: W. CORNWALL **[1]** Falmouth, 10.10, larva (S. Dunbar per PHB); IOS: St Agnes, c.10 larvae (Hicks, 2004); IOS: St Mary's, c.200 larvae reported (Scott, 2004a); Land's End, 11.10, larva (Boggis, 2003); Marazion, 11.10, larva (Boggis, 2003); Nanquidno Valley, 12.10, eight larvae (Boggis, 2003); Penzance area, early September, 20+ larvae (R. Sadler *et al* per PHB); Porthcurno, 11.10, larva (Boggis, 2003); Porthgwarra, 11.10, three larvae (Boggis, 2003); Praa Sands, 12.10, two larvae (Boggis, 2003); The Lizard, September/October, 'high numbers of larvae' (Tunmore, 2004); Sennen, 11.10, five larvae (Boggis, 2003); St Columb Major, 2.10, larva (PHB); Trevose Head, 21.9, larva (D.I. Julian per PHB). E. CORNWALL **[2]** Portmellon, 27.8, larva (B. Ofield per PHB); near Saltash, 2.8, larva (I. Bennallick per JH^2); Torpoint, 8.10, larva (Boggis, 2003). S. DEVON **[3]** Nr. Start Point, 25.8, nine ova & two larvae (BPH); Wembury, 19.9, larva (T. Sleep per RFM). DORSET **[9]** Blandford, 13.9, larva (N. Butt); Chilcombe, 5.9, two larvae (J. d'Erlanger); Portland, September/October, larvae found at several sites (Cade, 2004); Seacombe, 15.9, five larvae (PAD); Walditch, 30.9, larva (MSP); Wareham, 21.9, larva (A. Stewart); West Bexington, 25.9, larva (Eden, 2004). ISLE OF WIGHT **[10]** Along the south coast of the island, 12+ larvae reported (Knill-Jones, 2004); Bonchurch, mid-September, larva (JH); St Catherine's Point, mid-September, larva (JH). W. SUSSEX **[13]** Cross Bush, mid-October, pupa inside greenhouse (per CRP); Ferring, 13.9, larva (J. Kennedy per CRP); Plaistow, larva, pupated in October (per CRP). E. SUSSEX **[14]** Bevendean, 3.10 (C. Downs per CRP); Brighton, 15.9, larva (A. Stevens per CRP); Horns Cross, October, eight larvae (DB per CRP); Northiam, 1.10, larva (A. Lee per CRP); Peacehaven, 19.9, two larvae (K. Robinson per CRP); Rye Harbour, 27.9, larva (B. Yates per CRP). E. KENT **[15]** Dungeness, 24.9, twelve larvae (D. Bunny per SPC). N. ESSEX **[19]** Bradfield, September, larva (I. Rose per BG); Old Hall Marshes, 23.8, larva (C. Tyas per BG). E. SUFFOLK **[25]** Minsmere, 22-24.9, larva (Harvey, 2004). W. SUFFOLK **[26]** Whepstead, 4.9, larva (A. Read per AWP). GLAMORGAN **[41]** Bridgend, 28.9, larva(e) (Gilmore, 2004); Cheriton, 7.10, larva(e) (Gilmore, 2004); Cwm Ivy, 24.9, 25.9, 28.9, 29.9, at least six larvae in total (VS); Langley Bay, 6.10, larva(e) (Gilmore, 2004); Llanmadoc, 29.9, 2.10, larvae (Gilmore, 2004); Neath, 3.10, larva(e) (Gilmore, 2004); Pontcanna, 3.10, larva(e) (Gilmore, 2004); Pwll, Llanelli, 3.10, two larvae (R.D. Price); Rhossili, 12.10, larva(e) (Gilmore, 2004); St Donat's, 24.9, larva(e) (Gilmore, 2004); Tremorfa, September, larva(e) (Gilmore, 2004). CHESHIRE **[58]** North Wirral, 3.10, larva (P. Bowler per SF); Wallasey, 4.9, three larvae (D.C. Hinde per SF). S.E. YORKSHIRE **[61]** Kilnsea, 25.8, pupa dug up (P. Martin); Spurn area, five larvae found between 26.8 & 7.10 (BRS). ISLE OF MAN **[71]** Minorca Laxey, 19.9, larva (per GDC).

Importation: W. SUSSEX **[13]** Littlehampton, 31.1, on the side of a refrigerated lorry from South Africa (per CRP).

1984 *Macroglossum stellatarum* **(L.) Humming-bird Hawk-moth [I]**
Minimum no. adults reported: 5400+

Selected annual totals: W. CORNWALL **[1]** IOS: St Mary's, Longstone – 323 (Scott, 2004a). ISLE OF WIGHT **[10]** Approximate Island total – 200 (Knill-Jones, 2004). E. SUSSEX **[14]** Hampden Park, Eastbourne – c.100 (R. Mellor per CRP); Peacehaven – 68 (CRP); Woodingdean – 212 (R. Musselle per CRP). E. KENT **[15]** Dungeness area – 164 at ten sites (per SPC). S. ESSEX **[18]** Bradwell-on-Sea – 370 (Dewick, 2004). PEMBROKESHIRE **[45]** Skomer Island – 51 (Hayden, 2004). S.E. YORKSHIRE **[61]** Spurn area – 163+ (BRS, PAC, P. Martin). ISLE OF MAN **[71]** Island total - 23 (per GDC). W. CORK **[H3]** Dursey Island – 70+ (Scott, 2004b).

Non-specific comments: W. CORNWALL **[1]** Constantine, Falmouth, large numbers between 23.6 & 7.7 (H. Jonas per RDP); The Lizard, present in abundance during the summer and autumn months (Tunmore, 2004). DORSET **[9]** Portland, numerous by day throughout the island (recorded between 8.6 & 2.12) (Cade, 2004). ISLE OF WIGHT **[10]** Bonchurch, very common during the week of 18.8 (JH). S. HAMPSHIRE **[11]** 147+ adults recorded across the VC (per TN). N. HAMPSHIRE **[12]** 100+ adults recorded across the VC (per TN). ESSEX **[18 & 19]** A very good year, reported from forty-eight sites,

mostly from June to October with a peak in mid-August (per BG). HERTFORDSHIRE [**20**] 19.3 – 27.11, 171 adults recorded across the county (per CWP). CAMBRIDGESHIRE [**29**] Wicken, 20.6, then regular until end of August (DEW). BEDFORDSHIRE [**30**] 9.6 – 27.11, 130+ adults reported across the county (per LH). HUNTINGDONSHIRE [**31**]13.6 – 15.10, 83+ adults reported across the county (per BD). LEICESTERSHIRE [**55**] 9.6 – 30.10, 180+ adults reported across the county (per APR). NOTTINGHAMSHIRE [**56**] 11.6 – 10.10, 52+ adults reported across the county (per SW & JE). DERBYSHIRE [**57**] 13.6 – 18.10, 38+ adults reported across the county (Budworth *et al*, 2004). CHESHIRE [**58**] 7.6 – 11.11, 56+ adults reported across the county (per SF). LANCASHIRE [**59 & 60**] The first influx occurred in mid to late June, the moth being recorded widely throughout the county over the following few weeks. Then daily sightings throughout July and again during September (per SMP).

Earliest dates (active): E. CORNWALL [**2**] Launceston, 7.3 (J. Dowlman). EAST KENT [**15**] Pedlinge, 27.1 (S. Scrivens). HERTFORDSHIRE [**20**] Datchworth, 19.3 (A. Fisher per CWP); Digswell, 20.3 (T. Gladwin per CWP). MIDDLESEX [**21**] Enfield, 18.3 (per CWP). CAERNARVONSHIRE [**49**] Lleyn Peninsula, 13.3 (L. Hewitt).

Latest dates (active): S. SOMERSET [**5**] Taunton, 3.12 (J.C. Lidgate). DORSET [**9**] Portland, 2.12 (Cade, 2004). ISLE OF WIGHT [**10**] Freshwater, 15.12 (A. Butler per SAK-J). MIDDLESEX [**21**] Highgate Road, London, 21.12 (anon.). W. CORK [**H3**] Dursey Island, 6.12 (Scott, 2004b).

Large counts: W. CORNWALL [**1**] Constantine, Falmouth, 30.6 (24+) (H. Jonas per RDP); IOS: St Mary's, Longstone, 27-31.8 (74), including 21 on 28.8 (Scott, 2004a); Pendennis Castle, Falmouth, 23.6 (50) (R. Parslow). DORSET [**9**] Portland, August, 100+ on many dates (Cade, 2004). E. SUSSEX [**14**] Willingdon, 11.7 (12+, seen together probing chalk) (R. Mellor, S. Young per CRP). E. KENT [**15**] Dungeness Bird Observatory, 21.8 (15) (DW); Isle of Thanet, up to 10 daily in August (Solly, 2004). W. KENT [**16**] Otford, 24.6 (c.50) (Ferguson, 2005). S. ESSEX [**18**] Bradwell-on-Sea, 13.8 (32), 10-21.8 (double figure counts on nine days) (Dewick, 2004). S.E. YORKSHIRE [**61**] Kilnsea, 28.6 (7) (P. Martin). W. CORK [**H3**] Dursey Island, 26.9 (14) (Scott, 2004b). MID CORK [**H4**] Roche's Point, 21/22.6 (20) (T. Gittings per IR).

Most northerly records: ROXBURGHSHIRE [**80**] Harestanes, near Jedburgh, 3.9 (JW). BERWICKSHIRE [**81**] Milldown Point, 1.10 (JW). MIDLOTHIAN [**83**] Edinbugh, 13.11 (per SN). SHETLAND ISLANDS [**112**] Burravoe, 2.7 (D. & H. Thomson); Fair Isle, 13.9 (anon.); Hermaness, 14.6 (anon.); Muckle Roe, 15.8 (anon.); Outer Skerries, 20.9, 17.10 (2) (anon); Whalsay, 22.6 (B. & L. Marshall).

Light-trap records: W. CORNWALL [**1**] The Lizard, 30.8, 17.9, 20.9, 13.10 (Tunmore, 2004). S. DEVON [**3**] Teignmouth, 22.8 (RFM). DORSET [**9**] Canford, 30.9 (P. Taylor); Durlston, 19.9, 20.9 (SN, PAD); Portland Bird Observatory, 2.6 – 21.9 (29) (Cade, 2004); Preston, 5.6 (MF); Southwell, 13.9 (2) (JHC); Walditch, 7.9 (MSP); West Bexington, 23.6 (2), 25.6, 3.9 (RE); Weymouth, 30.6 (PHS); Wool, 19.9 (D. Cooper); Wyke Regis, 11.6, 14.6, 4.9 (2), 17.9 (DF). ISLE OF WIGHT [**10**] Bonchurch, around 18.8 (JH). W. SUSSEX [**13**] Pagham, 5.11 (JHC). E. SUSSEX [**14**] Elms Farm, Icklesham, 21.10 (Hunter, 2004); Heathfield, 21.9 (DRML per CRP). E. KENT [**15**] Dungeness area, June – October (14+, including 3 at the Bird Observatory on 5.9 & 21.9 (DW)) (per SPC); Isle of Thanet, undated (5 in total) (Solly, 2004); Sandwich, 10.6 (D. Wrathall). E. SUFFOLK [**25**] Landguard Bird Observatory, 26.7, 13.10 (Odin, 2004). E. NORFOLK [**27**] Eccles-on-Sea, 25.6, 30.6, 29.6, 12.9, 20.9 (NB per DH). BEDFORDSHIRE [**30**] Carlton, 17.9 (H.A. Smith per LH); Potton, 27.8 (H.A. Smith per LH); Studham, 18.9 (C.R.B. Baker per LH); Turvey, 3.9 (H.A. Smith per LH); Yelden, 13.10 (A. Paynter per LH). HUNTINGDONSHIRE [**31**] Earith, 14.6 (D. Griffiths per BD); Folksworth, August (1), September (1) (A. Frost per BD); Yaxley, July (1), August (1) (A. Frost per BD). S.E. YORKSHIRE [**61**] Spurn, 9.8 (BRS).

Evidence of hibernation: E. SUSSEX [**14**] Brighton, 10.1, 18.11, singletons at rest inside Royal Sussex County Hospital (J. Paul). GLAMORGAN [**41**] Paviland Cave, 27.10, prospecting inside cave.

Immature stages: DORSET [**9**] Badbury Rings, 9.7, four larvae (PAD); Coombe Valley, 13.7, 3.8, larvae (MF); Lulworth Cove, 18.7, three larvae (MSP); Portland, 10.7, thirteen larvae (RRC), 31.7, two larvae (MSP). E. SUSSEX [**14**] Camber, larvae during July (DB per CRP); Hope Gap, late July, thirteen larvae found in 15 minutes (AJB per CRP); Seaford Head, larvae during July (DB per CRP); Woodingdean, undated, two larvae (K. Robinson per CRP). S. ESSEX [**18**] Bradwell-on-Sea, forty-six larvae during July, 25.8 (larva) (Dewick, 2004). E. SUFFOLK [**25**] Beccles, 31.7, larva (M. Mayston per AWP); Felixstowe, undated, larva (B. Matthews per AWP). DERBYSHIRE [**57**] Bolehill, 22.7, larva (B.L. Statham, in Budworth *et al*, 2004); Bonsall Moor, 22.7, two larvae (B.L. Statham, in Budworth *et al*, 2004); Matlock, 22-25.7, nine larvae (B.L. Statham, in Budworth *et al*, 2004). S. LANCASHIRE [**59**] Liverpool, 18.7, c.25 larvae at the National Wildflower Centre (D. Young per SMP); Walton, 4.8, larva (M. Pons per SMP).

NOCTUIDAE

2091 *Agrotis ipsilon* **(Hufn.) Dark Sword-grass [I]**
Total no. reported: 10747
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
2708	4235	1584	377	373	235	252	406	299	72	206

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3	-	102	129	155	487	589	2060	2065	224	108	16

Selected annual totals from fixed traps: W. CORNWALL [**1**] IOS: St Agnes - 614 (Hicks, 2004); IOS: St Mary's, Longstone – 1488 (Scott, 2004a); The Lizard – 396 at three sites (Tunmore, 2004). DORSET [**9**] Bridport area – 122 at two sites (Parsons & Brereton, 2004); Portland Bird Observatory – 1737 (Cade, 2004); West Bexington – 768 (Eden, 2004). ISLE OF WIGHT [**10**] Approximate Island total – 1000 (Knill-Jones, 2004); Totland – 350 (SAK-J). W. SUSSEX [**13**] Selsey – 157 at two sites (Patton, 2004). E. SUSSEX [**14**] Elms Farm, Icklesham – 322 (Hunter, 2004). E. KENT [**15**] Dungeness area – 490+ at thirteen sites (per SPC); Isle of Thanet – 398 at seven sites (Solly, 2004). S. ESSEX [**18**] Bradwell-on-Sea – 288 (Dewick, 2004). E. SUFFOLK [**25**] Landguard Bird Observatory – 94 (Odin, 2004). E. NORFOLK [**27**] Eccles-on-Sea – 158 (Bowman, 2004). CHESHIRE [**58**] County total – 165 (per SF). S.E. YORKSHIRE [**61**] Spurn area – 265 at three sites (BRS, PAC). ISLE OF MAN [**71**] Dhoon Maughold – 114 (per GDC); Knocksharry – 68 (per GDC). WICKLOW [**H20**] Ashford – 122 (AT).
Ealiest dates: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 13.1, 14.1, 19.1 (MAS). E. CORNWALL [**2**] Looe, 24.3 (TS). E. KENT [**15**] Isle of Thanet, 11.3 (Solly, 2004). GLAMORGAN [**41**] Porthcawl, 7.3, 8.3 (Gilmore, 2004). SHETLAND ISLANDS [**112**] Eswick, 21.3 (2), 22.3 (2), 23.3 (5) (TR); Foula, 19.3, 20.3 (2), 23.3 (7) (G. & D. Atherton).
Latest dates: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 2.12 (Scott, 2004a). N. WILTSHIRE [**7**] Highworth, 4.12 (SN). DORSET [**9**] Upwey, 18.12 (PH); Walditch, 2.12 (2) (MSP). E. KENT [**15**] Dumpton, 6.12 (D. Wrathall); Lydd, 2.12 (KR); Pegwell, 12.12 (FS). S. ESSEX [**18**] Bradwell-on-Sea, 13.12 (Dewick, 2004). HERTFORDSHIRE [**20**] Hertford, 1.12 (AW per CWP). CHESHIRE [**58**] Alsager, 10.12 (M. Dale per SF); Romily, 20.12 (SF).
Large single night counts: DORSET [**9**] Portland Bird Observatory, 7.9 (106) (Cade, 2004). E. SUSSEX [**14**] Elms Farm, Icklesham, 23.8 (47) (Hunter, 2004). E. KENT [**15**] Lydd Ranges, 13.8 (80, at sugar) (SPC). S. ESSEX [**18**] Bradwell-on-Sea, 5.9 (54) (Dewick, 2004).

2119 *Peridroma saucia* **(Hb.) Pearly Underwing [I]**
Total no. reported: 1688
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
542	809	149	44	15	14	2	9	86	1	17

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3	-	2	6	12	58	40	153	430	214	44	10

Selected annual totals from fixed traps: W. CORNWALL [**1**] IOS: St Agnes – 71 (Hicks, 2004); IOS: St Mary's, Longstone – 266 (Scott, 2004a); The Lizard – 144 at three sites (Tunmore, 2004). DORSET [**9**] Portland Bird Observatory – 393 (Cade, 2004); West Bexington – 139 (Eden, 2004). ISLE OF WIGHT [**10**] Approximate Island total – 200 (Knill-Jones, 2004); Totland – 53 (SAK-J). E. KENT [**15**] Dungeness area – 49 at twelve sites (per SPC); Isle of Thanet – 70 at seven sites (Solly, 2004). ISLE OF MAN [**71**] Dhoon Maughold – 77 (per GDC).
Ealiest dates: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 12.1, 13.1, 14.1 (MAS). E. KENT [**15**] Isle of Thanet, 9.3 (Solly, 2004).
Latest dates: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 14.12, 18.12 (3), 24.12 (MAS). WICKLOW [**H20**] Ashford, 24.12 (AT).

Large single night counts: W. CORNWALL [1] IOS: St Mary's, Longstone, 17.9 (8), 13.10 (8) (Scott, 2004a). DORSET [9] Portland Bird Observatory, 1.9 (48) (Cade, 2004).
Most northerly records: FLINTSHIRE [51] Hawarden, 9.11 (G. Neal per SN). S.E. YORKSHIRE [61] Haxby, 22.8 (per TE); Kilnsea, 6.11 (PAC); Rudston, 11.6 (per TE); Spurn area, 19.8 – 2.10 (6) (BRS). ISLE OF MAN [71] Dhoon Maughold, 27.8 – 3.10 (77) (per GDC); Minorca Laxey, 3.7, 15.9 (per GDC). SHETLAND ISLANDS [112] Baltasound, 18.9 (anon.).
Selected inland records: N. HAMPSHIRE [12] Selborne, 15.6, 16.8, 19.11 (AEA). SURREY [17] Carshalton, 15.9 (D.A. Coleman per GAC); Mayford, 9.8 (M.E.J. Waller per GAC). HERTFORDSHIRE [20] Bishops Stortford, 30.9 (T.J. Lewis per CWP); Harpenden, 28.4, 18.5 (PG per CWP); Hertford, 14.8 (AW per CWP). MIDDLESEX [21] Hampstead, 25.6, 29.6, 4.7, 5.9 (R.A. Softly). BERKSHIRE [22] Slough, 9.9 (R. Hayward). BUCKINGHAMSHIRE [24] Longwick, 12.11 (A. Kershaw per SN). W. SUFFOLK [26] Nowton, undated (RFE per AWP); Sicklesmere, 7.11 (SD per AWP). LEICESTERSHIRE [55] Melton Mowbray, 20.9 (H.J. Orridge per APR). NOTTINGHAMSHIRE [56] Bunny, near Nottingham, 15.7 (M.E. Marchant per SW). S.E. YORKSHIRE [61] Haxby, 22.8 (per TE).

2195 ***Mythimna vitellina*** **(Hb.) Delicate [I]**
Total no. reported: 192
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
97	72	19	2	-	1	-	-	1	-	-

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	-	-	2	7	13	15	33	51	35	2	-

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: St Mary's, Longstone – 48 (Scott, 2004a); The Lizard – 18 at three sites (Tunmore, 2004). DORSET [9] Portland Bird Observatory – 30 (Cade, 2004); West Bexington – 20 (RE per PAD).
Ealiest dates: W. CORNWALL [1] IOS: St Mary's, Longstone, 28.4, 29.4, 2.5 (MAS); near Penzance, 4.5 (LO). DORSET [9] Kingcome, 3.5 (N. Spring per PAD). E. KENT [15] Littlestone, 6.5 (KR).
Latest dates: DORSET [9] Shapwick, 19.11 (PAD); West Bexington, 17.11 (RE per PAD).
Large single night counts: W. CORNWALL [1] Coverack, The Lizard, 13.10 (5) (DCGB); S. DEVON [3] Prawle Point, 20.8 (7) (PF per RFM). DORSET [9] Portland Bird Observatory, 23.8 (5) (Cade, 2004).
Most northerly records: ISLE OF MAN [71] Dhoon Maughold, 28.9 (per GDC).
Selected inland records: N. DEVON [4] Nr. Hatherleigh, 20.9 (R. Wolton per RFM).

2203 ***Mythimna unipuncta*** **(Haw.) White-speck [I][MC?]**
Total no. reported: 4362
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
2944	1230	51	6	1	51	-	4	36	1	38

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12	1	2	1	19	71	19	532	894	982	955	238

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: St Agnes – 391 (MEH, AD); IOS: St Mary's, Longstone – 1975 (Scott, 2004a); The Lizard – 394 at three sites (Tunmore, 2004). DORSET [9] Portland Bird Observatory – 406 (Cade, 2004); Puddletown – 170 (HWH); West Bexington – 228 (RE).
Ealiest dates: W. CORNWALL [1] IOS: St Mary's, Longstone, 12.1, 13.1 (2) (MAS); The Lizard, 21.3 (Tunmore, 2004).
Latest dates: W. CORNWALL [1] IOS: St Mary's, Longstone, 28.12 (3), 30.12, 31.12 (MAS). DORSET [9] Portland Bird Observatory, 2.12 (2) (MC); Upwey, 10.12 (PH); Walditch, 1.12 (MSP); West Bexington, 4.12 (RE). W. SUSSEX [13] Walberton, 1.12 (JTR per CRP).

Large single night counts: W. CORNWALL [**1**] Coverack, The Lizard, 12.10 (22), 13.10 (25) (DCGB); IOS: St Mary's, Longstone, 17.11 (130), 18.11 (85), 24.11 (49), 18.12 (67), 24.12 (24) (MAS). DORSET [**9**] Durlston, 5.9 (20) (DCGB). GLAMORGAN [**41**] Ty Capel, 14.10 (21) (S&SW).
Most northerly records W. LANCASHIRE [**60**] Bispham, 9.10 (B. Brigden per SMP); Burrow Heights, 1.10 – 27.10 (7) (B. Cockburn per SMP); Heysham, 21.9, 27.10 (J. Holding, P. Marsh per SMP); Lightfoot Green, 8.10, 11.10, 27.10 (SMP); Silverdale, 27.9 (J. Swift per SMP); St Annes, 27.9 (J. Steeden per SMP). S.E. YORKSHIRE [**61**] Kilnsea, 5.10 (BRS), 18.11 (PAC); Spurn, 19.9 (BRS), 20.11 (BRS per PAC). ISLE OF MAN [**71**] Island total – 25 (Craine, 2004). SHETLAND ISLANDS [**112**] Quendale, 16.9 (anon.).
Selected inland records: W. SUSSEX [**13**] Warnham, 21.11 (S. Bayley per CRP). E. SUSSEX [**14**] Crawley, 15.6 (M. Read per SN); Crawley Down, 16.9 (JHC per CRP). BERKSHIRE [**22**] Fernham, 19.11 (SN). E. NORFOLK [**27**] Scole, 30.7, 31.7, 13.8, 28.8 (M. Hall per DH).

2385 ***Spodoptera exigua*** **(Hb.) Small Mottled Willow [I]**
Total no. reported: 5201
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
1918	2450	629	27	36	37	10	1	21	-	72

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	-	4	1	51	915	410	1796	590	107	7	-

Selected annual totals from fixed traps: W. CORNWALL [**1**] IOS: St Agnes – 1023 (Hicks, 2004); IOS: St Mary's, Longstone – 658 (Scott, 2004a); The Lizard – 149 at three sites (Tunmore, 2004). DORSET [**9**] Portland Bird Observatory – 856 (Cade, 2004); Puddletown – 360 (HWH); West Bexington – 184 (RE). ISLE OF WIGHT [**10**] Bonchurch – 80+ (JH); Totland – 97 (SAK-J). W. SUSSEX [**13**] Kingsham – 314 (Patton, 2004). E. SUSSEX [**14**] Peacehaven – 112 (Pratt, 2004). E. KENT [**15**] Dungeness area – 115 at eleven sites (per SPC); Isle of Thanet – 107 at seven sites (Solly, 2004). S. ESSEX [**18**] Bradwell-on-Sea – 46 (Dewick, 2004). WEXFORD [**H12**] Tacumshin area, 22-24.8 (15) (Allen, 2004).WICKLOW [**H20**] Ashford – 38 (AT).
Ealiest dates: W. CORNWALL [**1**] IOS: St Agnes, 24.3 (Hicks, 2004); IOS: St Mary's, early April, by day (W.J. Scott); St Mary's, Longstone, 24.3 (2), 26.3, 4.4 (MAS); The Lizard, 24.3 (MT).
Latest dates: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 6.11, 9.11 (MAS). WICKLOW [**H20**] Ashford, 6.11 (2) (AT).
Large single night counts: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 8.8 (32) (Scott, 2004a). DORSET [**9**] Durlston, 26.6 (47) (PAD, SN), 5.9 (50) (DCGB); Langton Matravers, 5.9 (30) (DCGB); Portland Bird Observatory, 14.6 (109), 15.6 (93) (MC). W. SUSSEX [**13**] Kingsham, 8.8 (37), 9.8 (35) (SJP per CRP). E. SUSSEX [**14**] Winchelsea Beach, 8.8 (20) (DCGB).
Most northerly records: S. LANCASHIRE [**59**] Altcar, 8.8 (G. Jones, SMP); Billinge, 22.8 (C. Darbyshire per SMP); Chorlton, 21.9 (B. Smart per SMP); Flixton, 20.7 (K. McGabe per SMP); Hutton, 27.8 (A. Barker per SMP); Parr, 23.8 (2) (R. Banks per SMP). W. LANCASHIRE [**60**] Aldcliffe, 10.8 (P. Marsh per SMP); Heysham, 17.6 (J. Holding per SMP). S.E. YORKSHIRE [**61**] Kilnsea, 16.9 (BRS). ISLE OF MAN [**71**] Dhoon Maughold, 11.7 – 3.10 (9) (Craine, 2004); Minorca Laxey, 7.8, 26.8 (per GDC).
Selected inland records: N. HAMPSHIRE [**12**] Selborne, 5.7, 11.8 (2), 12.8 (3), 13.8 (2) (AEA); Sherborne St John, 2.8 (N. Montegriffo). SURREY [**17**] Ockley, 16.8 (W. Attridge per GAC); West Molesey, 23.6 (P.R. Williams per GAC); Weybridge, 23.8 (A.R. Mitchell per GAC). S. ESSEX [**18**] Epping, 21.7 (T. Green per BG). HERTFORDSHIRE [**20**] Bishops Stortford, 12.8 (CWP), 18.9 (JF per CWP); Broxbourne Wood, 4.8 (CWP); Marshalls Heath, 26.6 (J. Murray per SN); Millhoppers Pasture, 23.8 (CWP); Ravensdell Wood, 9.8 (CWP). BERKSHIRE [**22**] Dry Sandford, 5.8, 21.9 (AK); Fernham, 22.6, 18.7, 6.8 (2) (SN); Slough, 22.8 (R. Hayward). W. NORFOLK [**28**] South Lopham, 9.8 (LB-L per DH). CAMBRIDGESHIRE [**29**] Wicken, 10.8 (DEW). BEDFORDSHIRE [**30**] Flitwick Moor, 22.8 (C.R.B. Baker per LH); Maulden Woods, 6.8 (CWP per LH). WORCESTERSHIRE [**37**] Crossway Green, 26.6 (M. Southall per SN). WARWICKSHIRE [**38**] Bidford-on-Avon, 12.8 (R.M. Cox per DCGB); Charlecote, 30.6 (A.F. Gardner per DCGB), 17.8, 18.8 (DCGB). LEICESTERSHIRE [**55**] Dadlington, 31.5 (R. Smith per APR). DERBYSHIRE [**57**] Ault Hucknall, 5.9 (Budworth *et al*, 2004); Melbourne, 22.8, 24.8 (Budworth *et al*, 2004); Whitwell Wood, 23.8 (Budworth *et al*, 2004). S. LANCASHIRE [**59**] Chorlton, 21.9 (B. Smart per SMP); Flixton, 20.7 (K. McGabe per SMP).

2400 *Helicoverpa armigera* **(Hb.) Scarce Bordered Straw [I][In]**
Total no. reported: 1030
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
340	456	177	15	9	6	4	6	8	1	8

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	-	-	-	-	21	21	206	285	177	13	-

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: St Agnes – 60 (MEH, AD); IOS: St Mary's, Longstone – 148 (Scott, 2004a); The Lizard – 59 at three sites (Tunmore, 2004). DORSET [9] Portland Bird Observatory – 84 (Cade, 2004); Puddletown – 51 (HWH); West Bexington – 69 (Eden, 2004). ISLE OF WIGHT [10] Approximate Island total – 100 (Knill-Jones, 2004); Bonchurch – 30+ (JH); Totland – 14 (SAK-J). W. SUSSEX [13] Selsey – 20 at two sites (Patton, 2004). E. SUSSEX [14] Peacehaven – 22 (CRP). E. KENT [15] Dungeness area – 39 at eleven sites (per SPC); Isle of Thanet – 87 at seven sites (Solly, 2004). S. ESSEX [18] Bradwell-on-Sea – 16 (Dewick, 2004).
Ealiest dates: W. CORNWALL [1] IOS: St Mary's, Longstone, 18.6, 24.6, 25.6, 26.6 (2) (MAS). N. DEVON [4] Hartland Point, 22.6 (BPH, RFM). DORSET [9] Durlston, 26.6 (2) (PAD, SN); Wool, 23.6 (D. Cooper). ISLE OF WIGHT [10] Bonchurch, 26.6 (JH). E. SUSSEX [14] Peacehaven, 26.6 (2) (CRP).
Latest dates: S. DEVON [3] Chardstock, 15.11 (A. Jenkins per RFM). DORSET [9] Portland Bird Observatory, 9.11 (Cade, 2004); Upwey, 9.11, 10.11 (PH). W. SUSSEX [13] Walberton, 14.11 (JTR per CRP). E. KENT [15] Isle of Thanet, 19.11 (Solly, 2004).
Large single night counts: W. CORNWALL [1] Coverack, The Lizard, 12.10 (7), 13.10 (20), 15.10 (6) (DCGB); IOS: St Agnes, 12.10 (7), 14.10 (5), 15.10 (6) (Davison, 2004); IOS: St Mary's, Longstone, 25.9 (11) (Scott, 2004a). DORSET [9] Durlston, 5.9 (12) (DCGB). ISLE OF WIGHT [10] Bonchurch, 30.8 (5) (JH); Compton Bay, 16.8 (15+) (A. Kolaj, in Collins, 2004). W. SUSSEX [13] Pagham, 20.9 (4) (JHC, THF per CRP).
Most northerly records: MERIONETHSHIRE [48] Maentwrog, 22.8 (2) (DCGB). CHESHIRE [58] Allostock, 19.8 (P.M. Hill per SF); Great Sutton, 1.10 (M. Bellingham per SF). S. LANCASHIRE [59] Orrell, 4.9 (P. Alker per SMP). W. LANCASHIRE [60] Heysham, 8.8 (J. Holding per SMP). S.E. YORKSHIRE [61] Bishop Burton, 18.9, 20.9 (per TE); Kilnsea, 18.9 (PAC), 23.9, 3.10 (BRS); Spurn, 27.9, by day (BRS). S.W. YORKSHIRE [63] Bellflask, near Ripon, 17.9 (per TE); Rawmarsh, near Rotherham, 12.7 (D. Stables per SN). N.W. YORKSHIRE [65] Hutton Conyers, 30.9 (per TE). ISLE OF MAN [71] Dhoon Maughold, 18.9, 20.9 (per GDC); Orrisdale 28.8 (per GDC). SHETLAND ISLANDS [112] Burrafirth, 12.8 (anon.).
Selected inland records: N. WILTSHIRE [9] Avebury, 27.9 (Collins, 2004). N. HAMPSHIRE [12] Cholderton, 24.8 (H. Edmunds per TN); Grateley, 17.8 (S. Colenutt per TN). HERTFORDSHIRE [20] Bishops Stortford, 6.8 (JF per CWP); Hitchin, July, undated (K. Robinson per CWP). BERKSHIRE [22] Dry Sandford, 7.9, 27.9 (AK). W. SUFFOLK [26] Nowton, undated (RFE per AWP). CAMBRIDGESHIRE [29] Wicken, 9.9 (DEW). WARWICKSHIRE [38] Charlecote, 21.8 (DCGB); Rugby, 20.9 (I.G.M. Reid per DCGB). S.W. YORKSHIRE [63] Bellflask, near Ripon, 17.9 (per TE); Rawmarsh, near Rotherham, 12.7 (D. Stables per SN). N.W. YORKSHIRE [65] Hutton Conyers, 30.9 (per TE).
Immature stages: W. CORNWALL [1] Lizard Point, 20.10, larva on *Lavatera arborea* (adult reared 9.6.04) (J. Nelson, MT).

2403 *Heliothis peltigera* **(D. & S.) Bordered Straw [I]**
Total no. adults reported: 1241
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
257	606	229	34	37	19	30	7	7	-	15

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	-	1	1	3	399	143	322	88	3	-	-

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: St Agnes – 30 (Hicks, 2004); IOS: St Mary's, Longstone – 113 (Scott, 2004a); The Lizard – 19 at three sites (Tunmore, 2004). DORSET [**9**] Portland Bird Observatory – 86 (Cade, 2004); Puddletown – 30 (HWH); West Bexington – 120 (Eden, 2004). ISLE OF WIGHT [**10**] Bonchurch – 60+ (JH); Totland – 10 (SAK-J). W. SUSSEX [**13**] Kingsham – 27 (Patton, 2004). E. SUSSEX [**14**] Peacehaven – 18 (CRP). E. KENT [**15**] Dungeness area – 80 at twelve sites (per SPC); Isle of Thanet – 50 at seven sites (Solly, 2004). E. SUFFOLK [**25**] Landguard Bird Observatory – 13 (Odin, 2004). WICKLOW [**H20**] Ashford – 9 (AT).
Ealiest dates: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 6.4 (Scott, 2004a). E. NORFOLK [**27**] Weybourne, 24.3 (MP per DH).
Latest dates: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 28.10 (Scott, 2004a). DORSET [**9**] Preston, 11.10 (MF). E. KENT [**15**] Lydd-on-Sea, 3.10 (KA).
Large single night counts: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 14.6 (9), 16.6 (15), 26.6 (10), 30.6 (9) (MAS). DORSET [**9**] Durlston, 25.6 (8) (JMc), 26.6 (43) (PAD, SN), 5.9 (6) (DCGB); Portland Bird Observatory, 4.7 (6) (MC); West Bexington, 10.8 (12) (RE). ISLE OF WIGHT [**10**] Bonchurch, 23.6 (5), 7.8 (6) (JH).
Large diurnal counts: W. CORNWALL [**1**] IOS: St Mary's, Longstone, 16.6 – 7.7 (41), including 12 on 16.6 (Scott, 2004a). S. DEVON [**3**] Torquay, 6.7 (7) (W. Deakins per RFM).
Most northerly records: S. LANCASHIRE [**59**] Hutton, 5.7 (A. Barker per SMP); Hawick, 16.8 (A. Barker per SMP). W. LANCASHIRE [**60**] Heysham, 17.6 (J. Holding per SMP); Yealand Conyers, 17.9 (B. Hancock per SMP). S.E. YORKSHIRE [**61**] Easington, 22.8 (M.J. Stoyle per BRS); Kilnsea, 2.7 (PAC); Spurn, 10.8 (2), 23.8, 7.9, the last by day (BRS). N.E. YORKSHIRE [**62**] Saltburn-by-the-Sea, 17.9 (per TE). N.W. YORKSHIRE [**65**] Hutton Conyers, 14.9 (per TE). ISLE OF MAN [**71**] Dhoon Maughold, 20.9 (per GDC); Orrisdale, 18.8 (per GDC). WICKLOW [**H20**] Nr. Newcastle, 9.8 (Jeffares, 2003).
Selected inland records: N. WILTSHIRE [**7**] Highworth, 30.6, 6.7 (SN). S. WILTSHIRE [**8**] Tilshead, 27.6 (2), by day (JMc). N. HAMPSHIRE [**12**] Basingstoke, 2.6 (MW); Grateley, 3.6, 7.8, 9.8 (S. Colenutt per TN); Greywell, 13.6 (Collins, 2004); Magdalen Hill Down, 20.8 (P. Fleet per TN); South Wonston, 26.6 (P.J.S. Smith per TN). SURREY [**17**] Capel, near Dorking, 9.6 (D. Fraser); Epsom Downs, 18.9 (B.J. Grabaskey per GAC). HERTFORDSHIRE [**20**] Bishops Stortford, 18.8 (AH per CWP), 21.8 (JF per CWP); Harpenden, 17.6 (PG per CWP); Hertford, 26.6 (AW); Millhoppers Pasture, 23.8 (CWP); Royston, 5.8, 17.8, 26.8 (JEC per CWP); Ware, 18.8 (EG per CWP); Weston, 28.9 (A. Cockburn per CWP). BERKSHIRE [**22**] Dry Sandford, 26.6 (AK); Fernham, 22.6, 2.7, 6.8 (SN). W. SUFFOLK [**26**] Great Cornard, 5.9, 19.9 (SR per AWP); Hopton, 7.9 (PB^2 per AWP). E. NORFOLK [**27**] Scole, 7.8 (M. Hall per DH). HUNTINGDONSHIRE [**31**] Yaxley, June (undated), 28.6 (by day) (A. Frost per BD). NORTHAMPTONSHIRE [**32**] Werrington, 26.9 (P. Waring). WORCESTERSHIRE [**37**] Crossway Green, 19.6, 10.7, 11.7 (M. Southall per SN); Malvern, 6.7 (D.B. Throup per SN). WARWICKSHIRE [**38**] Charlecote, 17-29.6 (3), 3.7, 1.8, 17.8, 14.9, 30.9 (DCGB). LEICESTERSHIRE [**55**] Barrowden, 12.8 (R. Follows per APR); Braunstone, 17.8, 5.9 (L. Holton per APR); Fenny Drayton, undated (H.N. Ball per APR); Loughborough, 5.9 (N.J. Campsall per APR); Luffenham Heath, 18.7 (R. Follows per APR); Markfield, 26.8 (AJM per APR). NOTTINGHAMSHIRE [**56**] Newark-on-Trent, 4.8 (DA); Sutton-on-Trent, 4.8 (MK). DERBYSHIRE [**57**] Buxton, 31.7 (2) (S.A. Orridge per SHH); Swadlincote, 27.6 (Budworth *et al*, 2004). CHESHIRE [**58**] Alsager, 5.9, 14.9 (M. Dale per SF); Altrincham, 14.6 (R. Hilton per SF); Nantwich, 11.7 (D. Taylor per SF); Romily, 11.6 (SF). N.W. YORKSHIRE [**65**] Hutton Conyers, 14.9 (per TE).
Immature stages: Pagham Harbour, 30.7, 'hundreds of larvae' (SJP).

2441 ***Autographa gamma* (L.) Silver Y [I]**
Total no. adults reported (light-trap records only): 74768
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
5175	32819	14321	8547	4082	973	2755	3030	755	435	1876

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	1	5	83	224	3305	8005	22115	3294	481	157	22

Selected annual totals from fixed traps: W. CORNWALL [**1**] IOS: St Mary's, Longstone – 1837 (Scott, 2004a); The Lizard – 1441 at three sites (Tunmore, 2004). DORSET [**9**] Bridport area – 1000 at two sites (Parsons & Brereton, 2004); Portland Bird Observatory – 9563 (Cade, 2004); West Bexington

– 8531 (Eden, 2004). ISLE OF WIGHT **[10]** Approximate Island total – 7000 (Knill-Jones, 2004); Totland – 2200 (SAK-J). W. SUSSEX **[13]** Selsey – 2142 at two sites (Patton, 2004). E. SUSSEX **[14]** Peacehaven - 2058 (Pratt, 2004). E. KENT **[15]** Isle of Thanet – 2894 at seven sites (Solly, 2004); Kingsdown – 1211 (Jarman, 2004). S. ESSEX **[18]** Bradwell-on-Sea – 4737 (Dewick, 2004). E. NORFOLK **[27]** Eccles-on-Sea – 2926 (Bowman, 2004). S.E. YORKSHIRE **[61]** Kilnsea – 1870 (PAC). WEXFORD **[H12]** Tacumshin area, 22-24.8 (432) (Allen, 2004). WICKLOW **[H20]** Ashford – 1016 (AT).

Ealiest dates: W. CORNWALL **[1]** IOS: St Mary's, Longstone, 1.1, 2.1 (MAS); The Lizard, 31.3 (Tunmore, 2004). DORSET **[9]** Dorchester, 29.3 (J. Down); Preston, 23.2 (RL). E. KENT **[15]** Isle of Thanet, 11.3 (Solly, 2004). GLAMORGAN **[41]** Porthcawl, 21.3 (Gilmore, 2004).

Latest dates: W. CORNWALL **[1]** IOS: St Mary's, Longstone, 24.12 (Scott, 2004a); Mylor Churchtown, 19.12 (Cooke, 2004). S. DEVON **[3]** Starcross, 15/21.12 (Rothamsted Trap) (AHD). DORSET **[9]** Durlston Country Park, 22.12 (2) (SN). S. HAMPSHIRE **[11]** Portchester, 22.12 (JS). SURREY **[17]** New Haw, 17.12 (P.R. Wheeler per GAC).

Large single night counts: DORSET **[9]** Durlston, 26.6 (150) (PAD, SN), 5.8 (132), 7.8 (640) (JMc); Portland Bird Observatory, 11.8 (1558) (Cade, 2004); Southwell, Portland, 6.8 (500) (JHC). S. HAMPSHIRE **[11]** Portchester, 7.8 (134) (JS). E. KENT **[15]** Dungeness Bird Observatory, 11.8 (153) (DW); Kingsgate, 6.8 (214) (FS). S. ESSEX **[18]** Bradwell-on-Sea, 6.8 (803) (Dewick, 2004). E. SUFFOLK **[25]** Landguard Bird Observatory, 6.8 (656) (Odin, 2004). E. NORFOLK **[27]** Eccles-on-Sea, 21.7 (287) (Bowman, 2004). BEDFORDSHIRE **[30]** Nr. Milton Keynes, 1.7 (135) (LH). WICKLOW **[H20]** Ashford, 21.8 (195), 17.9 (219) (AT).

Large diurnal/dusk counts: W. CORNWALL **[1]** IOS: St Mary's, Longstone, 3.7 (300) (MAS). DORSET **[9]** Durlston, 25.6 (500) (PAD); Studland, 27.8 (500) (PAD). N. ESSEX **[19]** Jaywick, 14.8 (1200) (JY per BG). E. SUFFOLK **[25]** Landguard Bird Observatory, 7.8 (300+) (NO per AWP). E. NORFOLK **[27]** Nr. Hockwold, 2.8 (15,000), in a Lucerne field (P. Laurie). PEMBROKESHIRE **[45]** Skomer Island, annual total: 38946; August total: 37356 (including 10000+ on 25.8) (Hayden, 2004). LINCOLNSHIRE **[54]** Gibraltar Point, 27.7 (150) (Sykes, 2004). S.E. YORKSHIRE **[61]** Spurn Point, 5.7 (500), 16.7 (1200), 2.8 (6000) (BRS). W. CORK **[H3]** Dursey Island, 13.7 (500+) (Scott, 2004b).

Immature stages: W. CORNWALL **[1]** Paul, 20.7, many larvae on cut calabrese (J. Worth). S. DEVON **[3]** Torquay, 13.8, two larvae on *Parietaria judaica*. E. KENT **[15]** Nr. Canterbury, undated, three larvae on *Ocimum basilicum* in a supermarket (S. Warry per IDF). LEICESTERSHIRE **[55]** Broughton Astley, 16.8, two larvae on *Geranium* (G. Adams per APR).

ANNEX 3: SELECTED 2003 CHANNEL ISLANDS [VC 113] RECORDS

1384 ***Phlyctaenia stachydalis* (Germar)**
Guernsey: L'Ancresse, 12.7 (RA); St Martins, 10.7 (RA); first VC records.

1448a ***Elegia fallax* (Stdgr.)**
Guernsey: St Peters, 16.4, first VC record (Sterling & Costen, 2005).

1539 ***Papilio machaon ssp. gorganus* (Fruhs.) Continental Swallowtail**
Guernsey: Bordeaux Tip, 28.7 (M. Bougourd per RA), Pecqueries, 21.7 (I. Hall per RA).

1567 ***Lampides boeticus* (L.) Long-tailed Blue**
Guernsey: Jaonnet Bay, 15.10 (A. Smith per RA); St Peter Port, 15.9 (not 3.9 as stated in Austin, 2004a) (J. Gilmore, in Austin, 2004b). Jersey: Grouville, 7.8 (3), 8.8 (2), then 35+ across the island during the rest of August (DJW, in Jones, 2004).

1594 ***Aglais polychloros* (L.) Large Tortoiseshell**
Herm: 21.3 (B. Kendall per RA).

1639 ***Dendrolimus pini* (L.) Pine-tree Lappet**
Guernsey: Icart, 31.7 (TNDP).

1678a ***Cyclophora ruficiliaria* (H.-S.) Jersey Mocha**
Guernsey: Icart, 18.7, first Guernsey record (TNDP per RA).

1684 ***Scopula nigropunctata* (Hufn.) Sub-angled Wave**
Jersey: Trinity, 2.7, first VC record (RIS, in Gould, 2005).

1973 ***Acherontia atropos* (L.) Death's-head Hawk-moth**
Guernsey: St Martins, 20.10 (Austin, 2004a); St Peter Port, 18.9 (PC).

2018 ***Clostera anachoreta* (D. & S.) Scarce Chocolate-tip**
Guernsey: L'Ancresse, 1.8, first Guernsey record (RA).

2083 ***Euxoa cursoria* (Hufn.) Coast Dart**
Herm: 28-30.7, first VC record (DJW per RA).

2160a ***Lacanobia splendens* (Hb.) Splendid Brocade**
Jersey: Surville, 21.6 (2) (RL^3); Guernsey: Icart, 17.7 (Austin, 2004b); St Peters Port, 5.7 (PC).

2223 ***Calophasia lunula* (Hufn.) Toadflax Brocade**
Guernsey: St Peter Port, 22.7, first VC record (Austin, 2004a).

2387a ***Platyperigea kadenii* (Frey.) Clancy's Rustic**
Guernsey: Icart, 17.9, 5.10 (not 15.9 & 2.10 as given in Austin, 2004a) (TNDP, in Collins, 2004); St Peters Port, 19.9 (PC). Jersey: Grouville, 18.9 (R. Hayward). The first VC records.

2404 ***Heliothis nubigera* (H.-S.) Eastern Bordered Straw**
Guernsey: St Peter Port, 30.8 (D. Andrews per RA); L'Ancresse, 6.9 (2) (RA); St John, 16.8 (RA); St Martins, 25.6 (RA); first VC records.

2436 ***Macdunnoughia confusa* (Steph.) Dewick's Plusia**
Guernsey: Icart, 5.9 (TNDP per RA).

2451 ***Catocala fraxini* (L.) Clifden Nonpareil**
Guernsey: St Peters Port, 12.10 (PC).

2453 ***Catocala electa* (View.) Rosy Underwing**
Guernsey: Forest, 18.8 (TNDP per RA); Mont D'Aval, 21.8 (M. Simmons per RA); St Johns, 5.8 (RA). Jersey: Grouville, 7.8 (2), 8.8 (2) (DJW, in Collins, 2004), 17.9 (R. Hayward, in Collins, 2004). These records are likely to be associated with a breeding population in VC **113**.

APPENDIX 1

Corrections/Additions to 2002 report

0897b ***Anatrachyntis simplex* (Wals.) [In]**
S. DEVON [**3**] Nr. Ivybridge, moth bred on 29.1 from a larva found in a pomegranate purchased from a supermarket on 22.12.01, stated to have been imported from India. New to Britain (RJH, in Beaumont, 2004).

1389 ***Udea fulvalis* (Hb.) [I][MC]**
S. HAMPSHIRE [**11**] Ringwood, 22.7 – 13.8 (13) (RF); likely to be the result of local colonisation.

2403 ***Heliothis peltigera* (D. & S.) Bordered Straw [I]**
CAMBRIDGESHIRE [**29**] Wicken, 31.8, 11.9 (DEW).

2432 ***Trichoplusia ni* (Hb.) Ni Moth [I]**
CAMBRIDGESHIRE [**29**] Wicken, 14.8 (DEW).

Correction to 1998 report

2411 ***Deltote deceptoria* (Scop.) Pretty Marbled [I]**
[E. KENT [**15**] Greatstone, 20.6 (BB) (Ent Rec. **112**: 246). Erroneous record.]

Initials of recorders

AC	Cornish, A.	GMH	Haggett, G.M.	NMH	Hall, N.M.
AD	Davison, A.	HWH	Wood Homer, H.	NO	Odin, N.
AEA	Aston, A.E.	IC	Cook, I.	NW	Whinney, N.
AGJB	Butcher, A.G.J.	IDF	Ferguson, I.D.	OD	Davis, O.
AH	Hardacre, A.	IDH	Hunter, I.D.	PAD	Davey, P.A.
AHD	Dobson, A.H.	IM	Mathieson, I.	PAC	Crowther, P.A.
AJB	Bradshaw, A.J.	IR	Rippey, I.	PB	Bergdahl, P.
AJM	Mackay, A.J.	IRT	Thirlwell, I.R.	PB^2	Bryant, P.
AJP	Pickles, A.J.	JA	Astley, J.	PC	Costen, P.
AK	Kennard, A.	JBH	Higgott, J.B.	PF	Franghiadi, P.
AM	Musgrove, A.	JBW	Webb, J.B.	PH	Harris, P.
AMD	Davis, A.M.	JC	Clifton, J.	PHB	Boggis, P.H.
ANG	Graham, A.N. & J.E.	JE	Ellis, J.	PHS	Stirling, P.H.

APR	Russell, A.P.
ARC	Collins, A.R.
ASH	Henderson, A.S.
AT	Tyner, A.
AW	Wood, A.
AW^2	Wander, A.
AWP	Pritchard, A.W.
BB	Banson, B.
BD	Dickerson, B.
BFS	Skinner, B.F.
BG	Goodey, B.
BKW	West, B.K.
B&LB	Bewsher, B. & L.
BPH	Henwood, B.P.
BRS	Spence, B.R.
BS	Stewart, B.
CH	Hart, C.
CG	Gibson, C.
CM	Manley, C.
CR	Roots, C.
CRP	Pratt, C.R.
CS	Slater, C.
CT	Turley, C.
CWP	Plant, C.W.
DA	Atkinson, D.
DB	Burrows, D.
DBW	Wooldridge, D.
DCGB	Brown, D.C.G.
DEW	Wilson, D.E.
DF	Foot, D.
DH	Hipperson, D.
DH^2	Hoare, D.
DJW	Wedd, D.J.
DRML	Long, D.R.M.
DRWG	Gilmore, D.R.W.
DW	Walker, D.
FS	Solly, F.
GAC	Collins, G.A.
GB	Bailey, G.
GBH	Hocking, G.B.
GD	Davis, G.
GDC	Craine, G.D.
JEC	Chainey, J.E.
JH	Halsey, J.
JH^2	Herbert, J.
JHC	Clarke, J.H.
JMc	McGill, J.
JO	Owen, J.
JRL	Langmaid, J.R.
JS	Stokes, J.
JTR	Radford, J.T.
JW	Waddell, J.
JY	Young, J.
KA	Arter, K.
KB	Bond, K.
KNAA	Alexander, K.N.A.
KR	Redshaw, K.
KR^2	Regan, K.
KRT	Tuck, K.R.
LB-L	Broom-Lynne, L.
LH	Hill, L.
LK	Kneale, L.
MAS	Scott, M.A. & W.J.
MB	Bailey, M.
MC	Cade, M.
MC^2	Cornish, M.
MCP	Perry, M.C.
MD	Deans, M
ME	Easterbrook, M.
MEH	Hicks, M.E.
MF	Forster, M.
MJ	Jeffes, M.
MK	Kennewell, M.
MM	Marsh, M.
MO'S	O'Sullivan, M.
MP	Preston, M.
MPS	Skevington, M.P.
MRH	Honey, M.R.
MSP	Parsons, M.S.
MT	Tunmore, M.
MW	Wall, M.
NAC	Croton, N.A.
NB	Bowles, N.
NG-D	Greatorex-Davies, N.
NJ	Jarman, N.
PK	Kitchener, P.
RA	Austin, R.
RC	Clamp, R.
RC^2	Cox, R.
RDP	Penhallurick, R.D.
RE	Eden, R.
REL	Lane, R.E.
RF	Fox, R.
RFE	Eley, R.F.
RFM	McCormick, R.F.
RH	Hollins, R.
RIS	Rothamsted Insect Survey
RJH	Heckford, R.J.
RJM	Moore, R.J.
RL	Lambert, R.
RL^2	Leverton, R.
RL^3	Long, R.
RM	Marsh, R.
RP	Parker, R.
RRC	Cook, R.R.
S&SW	Walmsley, S. & S.
SAK-J	Knill-Jones, S.A.
SD	Dumican, S.
SF	Farrell, S.
SH	Hatch, S.
SHH	Hind, S.H.
SHP	Piotrowski, S.H.
SJP	Patton, S.J.
SMP	Palmer, S.M.
SN	Nash, S.
SPC	Clancy, S.P.
SR	Read, S.
SRD	Davey, S.R.
SW	Wright, S.
TE	Ezard, T.
THF	Freed, T.H.
TN	Norriss, T.
TNDP	Peet, T.N.D.
TR	Rogers, T.
TS	Steele, T.
VS	Shenston, V.
VT	Tucker, V.

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Hazards of butterfy collecting. It seemed a good idea at the time: London 2001

I had arrived in London after more than two months in Ghana where I had been doing an analytical survey of the butterflies in two of Ghana's most important national parks, Ankasa and Bia. The trip had been quite successful and a number of butterflies needed closer investigation, including a couple of suspects for the status of species new to science. When unpacking the butterflies, I discovered to my dismay that the first box opened was under attack by pests – the grey powder inside their semi-transparent paper triangles was unmistakable. I am always very careful to dose each of the storage boxes with naphthalene or paradichlorbenzole. These toxic substances are no longer available commercially in our well-regulated European Union so I buy my supplies locally. However, the shopping around Bia and Ankasa did not stretch far enough to supply "camphor" so some boxes had not been topped up.

What to do? Once established, pests are notoriously difficult to eradicate. I had a bright idea. What about zapping them in the microwave? Even eggs could hardly survive a good five minutes at full blast. I made a selection of butterflies of various sizes and hues for a test, put them on a plate … and even remembered to add a glass of water for the benefit of the microwave. After five minutes the butterflies looked none the worse for wear. Next I called my colleagues at the Natural History Museum. I was welcome to bring in the boxes and they could freeze them for some days to some unimaginably low temperature, which was their way of dealing with such issues. In fact, all new material donated gets frozen down this way. But, yes there seemed to be some papers indicating that the microwave approach should work. Since I was leaving for home in Manila in a few days' time, I decided on the microwave. Another test was done with infected and non-infected butterflies from the same box for eight minutes. They were left in the microwave overnight. No traces of pest activity were visible next day. I then zapped the box itself for eight minutes; all still seemed well.

I opened the next box, put the box and its contents in the microwave, turned it on for eight minutes and went to the neighbourhood shop for a few essentials. When I entered the driveway to our building I was mildly surprised to see what looked like a slight haze through the windows of our large studio-flat. There was a smell of naphthalene when I opened the joint front door and when I opened the door to our flat a white cloud of evil-smelling smoke billowed out, forcing me back out in the open. There had evidently been plenty of naphthalene in the box and the microwaves had turned it to gas. I took a deep breath, rushed in, opened the back windows, and returned outside. After five minutes I took another deep breath to open the front windows, barely managing to get out in time. Then another dive into the flat to get something to read on the front stairs. Half an hour later seemed safe to enter the flat. The smell was still terrible, but it was possible to read near the open window. Whether it would be possible to sleep in my own bed that night was far from clear.

The box of papered butterflies was a sorry mess. The volatile substances had obviously turned to gas. The remainder had absorbed lots of moisture, now

congealed with the paper triangles to a solid lump – enclosing one of the candidates for *species novo*. To add insult to injury, the remaining six boxes of papered material were all well stocked with camphor and free of pests: much ado about nothing … as someone once put it. But it is a reminder that chemicals and medicines do have to be handled with care and that some of the rules and regulations pertaining to this may well have merit.

My first killing medium for butterflies was potassium cyanide, a substance as toxic as they come. There was a procedure on how to get it in Denmark. You obtained a letter from your local entomological or natural history society testifying that you were an upstanding member with a genuine interest in insect collecting. You went to your police station and filled in a simple form, requesting a killing bottle. A few days later you received a slightly bureaucratese letter stating: "The police in Kastrup have no reason not to approve that 25gr of the requested chemicals are issued to the requiree provided that they are embedded in plaster of paris by an approved chemist [see list below]." One of the two chemists on the list below would duly make up an appropriate killing bottle, with adequate safeguards for the entomologist and the general public.

When my Danish killing bottles weakened after several years' of intensive collecting in Lebanon during the early 1970s, Henri Stempffer ("Master of the African Blues", *Ent. Rec. J. Var*, 104:171-172 (1992)) came to my rescue, giving me enough industrial cyanide to last my time in Lebanon (industrial cyanide is not as pure as that from chemists and is actually better because its toxic gas develops faster). In 1975 I moved to London. We bought a large flat in Jackson's Lane, Highgate (I hate to think what it would be worth today). When well installed, I went down to the local police station: "I need a certificate to buy cyanide", I said to the station officer. "Cyanide, Sir!?!?" I explained the Danish procedures. It was a lazy afternoon – we were not good at crime in Highgate – so other officers joined in, but the conclusion was clear: "Sorry, Sir … we don't do that kind of thing".

I called a colleague at the then British Museum (Natural History). Given all the material I had donated, he thought they could do me some killing jars. I was afraid I might need much more help than that in my future butterfly research, so I demurred: I was put through to their laboratory. They got their cyanide from a company in Enfield. I called Enfield: "Do you stock cyanide?" They did. "I'd like 250gr". "Sorry, we only sell by the kilo", said the bright young lady at the other end of the line. A kilo was something like £2.68 + VAT. "So what are the conditions of sale?" I asked. The answer was as precise as it was instantaneous: "You have to pay in advance" (a very British response indeed). I gave my office address and sent off a cheque. Two days later our receptionist phoned me: "Your cyanide has just arrived". I went down and picked up a package with one kilo of cyanide.

I suspect that the bright young lady at the other end of the telephone transgressed some company and/or government guideline on the sale of cyanide. But then again … who would order a kilo of cyanide if they did not need it? But that kilo of cyanide lasted me for the next fifteen years till I gave up using it.— TORBEN B. LARSEN, UNDP Vietnam, c/o Palais des Nations, 1211 Geneva 10, Switzerland.

Acleris logiana (Cl.) (Lep.: Tortricidae) on Guernsey

Late in the evening of 12 November 2005 I found a pale tortricid moth resting on the wall of my house under an outside light. At first glance I took it to be *Acleris boscana* (Fabr.) but elm, once the dominant tree on the island, has now mostly disappeared and I do not see the moth as often as I once did. In any case, its appearance did not seem quite right for *boscana* and, besides, I did not recall ever seeing it at such a late date. I dissected the genitalia, unfortunately making rather a poor job of it, and was no further on with identifying the moth until I showed the set specimen to Dr Phil Sterling on one of his visits to Guernsey. He immediately recognised it as *Acleris logiana*, a species new to the Channel Islands.

Acleris logiana, which was previously thought to be a resident only of Scotland in the British Isles, was found in South Hampshire (VC11) as larvae in spun birch leaves by John Langmaid in late 1991 (1993. *Ent. Gaz.* **44**:154) and the annual reviews of microlepidoptera published in this journal since then note that it has been recorded subsequently from North Hampshire (VC 12) and a further six vice-counties in southern England, namely the Isle of Wight (VC10) in 1997, East Suffolk (VC25) in 2000, Berkshire (VC22) in 2004 East Norfolk (VC 27) in 2004, North Essex (VC 19) in 2005 and West Suffolk (VC 26) in 2005.

Its appearance on Guernsey (VC113) suggests a further spread, although it is unlikely to survive here for long, if at all, as there is only a small amount of planted birch on the island. It has not been recorded from Normandy since the 1930s and never from La Manche, that part nearest the Channel Islands (Quinette, pers. comm.). — P. D. M. Costen, La Broderie, La Claire Mare, St. Peter's, Guernsey GY7 9QA (E-mail: pcosten@guernsey.net).

Caterpillars drinking 'sugar'

At dusk on 28 September 2006, at my home address in Banffshire, two caterpillars joined the array of autumn moths on my line of sugared fence posts. One was a final instar Ruby Tiger *Phragmatobia fuliginosa*, the other a Scalloped Hazel *Odontopera bidentata* of the striking 'lichened' form. Ironically, I have never recorded the adults of either species at my sugar patch. Ruby Tiger, of course, does not feed as an imago. Scalloped Hazel certainly has a functioning proboscis, but I have rarely seen it feeding, and then only at the honeydew produced by aphids on sycamore leaves. — Roy Leverton, Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

Third British record of _Uloma culinaris_ (L.) (Col.: Tenebrionidae) from southern Hertfordshire

On 2 September 2006, while collecting insects along the canal towpath near Casiobury Park in Watford, Hertfordshire (VC 20), my son Conall handed me a female *Uloma culinaris*. The beetle had been active on the surface of a fallen *Fagus*, the bark of which was mostly missing and the wood wet and hosting several different bracket fungi. Parts of the trunk were infested with *Sinodendron cylindricum* (L.) and

the lycid *Platycis minutus* (Fab.) was in abundance both on the wood and the surrounding nettles. Searching for another hour or so while the bright sunshine continued failed to reveal other specimens, as did subsequent visits during September.

This is the third British record of *Uloma culinaris*. The first, from 'Bushey Hall' in 1950, is thought to relate to the Hertfordshire Bushey Hall, only a few miles from the present site (see Barclay, *Ent. Rec.* **115**: 181 – 186). The only other record is of specimens collected from the Forest of Dean in 1973 by Wormesley and donated to the BM(NH).

I thank Mr Trevor James for confirming the identity of my *U. culinaris* and both Mr James and Mr M. V. L. Barclay for encouraging me to report this find.— D. Murray, Flat 2, 52 Marlborough Road, Watford, Hertfordshire WD18 OQB.

Acleris lipsiana (D.& S.) (Tortricidae) and *Eudonia lineola* (Curtis) (Pyralidae) new to the Shetland Isles

Amongst a number of micro moths sent to me for genitalia examination from the Shetland Isles this year was a male *Acleris lipsiana* caught by Terry Rogers at Lea Gardens, Tresta, West Mainland on 22 September 2006. The larva of *Acleris lipsiana* is associated with *Myrica gale*, *Vaccinium myrtillus* and *V. vitis-idaea* and the species is apparently restricted to upland areas northwards from the north of England and across the Scottish mainland. However, it is not yet recorded from Orkney (John Langmaid, pers. comm.) and the present records appear to be the first for the Shetland Islands (VC 112). The trap site is one of few well-stocked, mature gardens, situated on the side of expansive moorland with *Vaccinium myrtillus* away from Lerwick and regularly hosts 'new' species to this northern islands fauna.

Perhaps less surprising, though nevertheless apparently also new to Shetland, were two examples, one male and one female, of *Eudonia lineola* both caught at Virkie at the southern tip of Mainland by Paul Harvey on 26 July 2006. This moth, whose larvae feed on lichens growing on trees and rocks, is widely distributed, albeit rather locally, across Scotland as far north as West Sutherland (VC 108), with an unconfirmed record from the Orkney Islands (VC 111).

My thanks go to Matthias Nuss (Museum für Tierkunde, Dresden), for confirming my identification of *Eudonia lineola*, to John Langmaid (Southsea) for confirming the status of these moths in Shetland and to the Shetland team, mainly Paul Harvey, Mike Pennington and Terry Rogers, for continuing to send material to me.— Jon Clifton, Kestrel Cottage, Station Road, Hindolveston, Norfolk NR20 5DE (E-mail: jon.clifton@btinternet.com).

Stauropoctonus bombycivorus (Gravenhorst) (Hym.: Ichneumonidae) new to the Isle of Wight

On 5 August 2006, Tim Norris, James Halsey, Peter Cramp myself set up lights in Parkhurst Forest. One of our captures was a large ichneumon fly which was identified from a photograph as *Stauropoctonus bombcivorus*, a rare species which

has only previously been recorded from Windsor Forest and the New Forest. It is said to parasitise the Lobster moth *Stauropus fagi* (L.). This appears to be the first record for this species for the Isle of Wight.— SAM KNILL-JONES, 1 Moorside, Moons Hill, Totland, Isle of Wight P039 OHU.

Perils of the vernacular

The name "Scarlet Malachite Beetle" for *Malachius aeneus* L. (Melyridae) (*Ent. Rec.* **118**: 179) gives a somewhat confused idea of its colouring to anyone not acquainted with the species. It is, indeed, rather extensively scarlet, or at any rate red; however, malachite is not a red but a green mineral (hydrated copper carbonate). The choice of name for the beetle was probably influenced by the generic name *Malachius*, unconnected with the above, but apparently suggested by the Greek *malakos*, meaning "soft", as in *Malocodermata* – the soft-skinned beetles.— A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Avian predation of Sand Dart *Agrotis ripae* Hb. (Lep.: Noctuidae)

Tutt's (1901) *Practical Hints for the Field Lepidopterist* describes how imagines of Sand Dart *Agrotis ripae* may be found abundantly under pieces of driftwood lying on the shore above the high tide mark. I decided to put this to the test when visiting St. Cyrus (the village, not the holy man) in Kincardineshire with Mark Young on 28 June 2005. The dunes there are a good site for this species.

Most of the driftwood present consisted of old bleached boughs of pine and other trees. Their irregular shapes left gaps and hollows beneath them, suitable places for a moth to hide. Very quickly I found the first Sand Dart – or rather, part of one. Only its disembodied wings remained.

At least this seemed a promising start, but my confidence was misplaced. Further searching produced just more sets of wings. Then I noticed that every piece of driftwood was circled by the delicate tracks of Meadow Pipit *Anthus pratensis*, the imprint of its long hind claw clearly visible in the fine sand. The whole beach had been systematically worked already! I failed to find a single live moth by this method, though did see one later, nectaring on a hogweed head after dark.

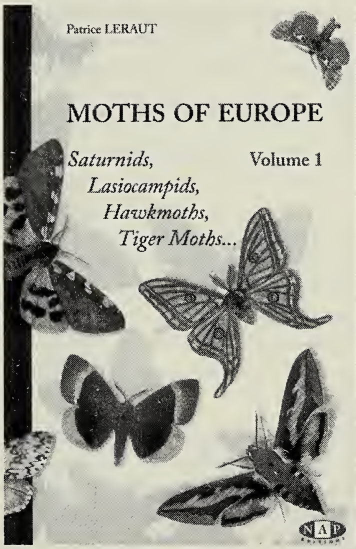
We were also pleased to find two freshly emerged examples of Shore Wainscot *Mythimna littoralis*, again at hogweed. St. Cyrus is its northernmost site in Britain and these were the first records there for over a decade.— ROY LEVERTON, Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

SUBSCRIBER NOTICE

We are undertaking a molecular study on the phylogeny of the snakeflies (Raphidioptera) and we urgently need one or two specimens of *Atlantoraphidia maculicollis* (one of the four British species in this group) preserved in alcohol of high concentration (if possible 96% or so). If the specimens are not older than five to ten years, then alcohol of a lower concentration may be suitable. Dried specimens are not required. Preserved larvae would also be useful.— PROF. DR HORST ASPÖCK, Department of Medical Parasitology, Clinical Institute of Hygiene and Medical Microbiology, Medical University of Vienna, Kinderspitalgasse 15, 1095 Wien, Austria (E-mail: horst.aspoeck@meduniwien.ac.at).

BOOK REVIEW

Moths of Europe, Volume 1: Saturnids, Lasiocampids, Hawkmoths and Tiger Moths by **Patrice Leraut.** 395pp.; 77 colour plates. 200 x 130 mm., hardbound. ISBN 2 913688 07 1 (English language version) and 2 913688 06 3 (French version). NAP Editions, 2006. €59 plus €7 postage and packing. Available from the publisher at 3 chemin des hauts graviers, 91370 Verrieres le Buisson, France, or via www.napeditions.com



NAP Editions is a relatively new name to the world of natural science publishing, the book under review is their fourth production. The previous three excellent books concentrate on the various families of Coleoptera (*Coleoptères de l'Europe*, available in French only), all written and illustrated by Gaetan de Chatenet, who is also responsible for the Preface in this present volume. Patrice Leraut is an authority on the Lepidoptera of France and Europe and has a great many publications to his name, but this work must surely be the culmination of his researches into the fauna of Europe. Published in French and English simultaneously, *Moths of Europe* covers the families Arctiidae, Sphingidae, Lasiocampidae, Saturniidae, Endromidae, Lemoniidae, Bombycidae, Drepanidae, Axiidae, Limacodidae, Notodontidae, Lymantriidae, Brahmaeidae, Castniidae, Heterogynidae, Somabrachyidae, Cossidae, Hepialidae, and Thyrididae, with 445 species described. Three new species (*Cilix algirica* Leraut, *Heterogynis valdeblorensis* Leraut and *Heterogynis pravieli* Leraut) are described as well as five new subspecies and five new forms. The male genitalia are drawn for the first two but, oddly, not for *H. pravieli*. One is inevitably led to wonder why new species are described in a book that is clearly intended for the popular market and which contains such basic material as "what is a moth"; it would surely be usual, and perhaps more acceptable to fellow researchers, for new species to be described in one of the many peer-reviewed journals?

The format follows the well tried and excellent system of their other publications; there is an introduction dealing with anatomical details, habitats (with examples of species to be found in each), collecting, identification, conservation etc. The text for each species is extremely informative including scientific, French and English names, description, variation, similar species, flight time, biology, status and distribution with maps. The colour plates are grouped together and are of excellent clear and well detailed quality. To include the large number of species, the moths depicted are not necessarily life size, although of the same scale on each plate. Actual size is mentioned on the opposite page also containing the identification and number of the text page. However, the caption pages facing plates 47, 48, 49 were evidently overlooked; they remain in French. Although the colours are natural, there is a certain overall greyness to the plates due to the reverse impression showing through. This may be due to the use of paper of a lighter weight than that used in their Coleoptera books, where this phenomenon does not occur.

As stated the text is extremely informative, but some confusion could be caused by the distribution maps. For example, the map for *Daphnis nerii* (L) (Sphingidae), shows "black" throughout Europe, except north of Finland. The text explains that this shows the maximum migration zone, and then mentions it is exceptional outside its natural habitat. It would have been better if the "natural habitat" had been marked in black and the limits of migration indicated by something like hatching. There are other anomalies within this family and doubtless elsewhere. Comparative line-drawings of genitalia, wing venation and wing patterning are generously provided where species are difficult to separate, an extremely useful tool when this book deals with so many forms and subspecies.

There is one contentious detail in this book, however, and that is the choice of vernacular names. A paragraph at the beginning of the book perfunctorily deals with this. There has already appeared in the pages of *Entomologist's Record* a considerable discussion on this subject, to which I now add. Normally each country has its own name for a species, (e.g. Red Admiral becomes Vulcan in France) so that the British List will have Latin and vernacular names. It becomes ridiculous for a species endemic to, for example, a mountain or narrow habitat in the Urals to be given an English name. In this book EVERY species has been given an English name. Those on the British List are naturally given their habitual vernacular names, the remaining are given either a literal translation of the French or else a meaningless and/or confusing English appellation. For example, members of the genus *Dyspessa (*Cossidae) are given the common name of Mottled. *Dyspessa emilia* is highly local and endemic to Sicily; the French name is "marbrure du Peloponnese" and for the English version we have the Pelops Marbled! There are other examples. For example, a book quoted in the bibliography, and regarded as a reference for this present work, gives one English name for a saturnid whilst in the present work there appears a different one!

Discounting the vernacular names, which have been supplied by Robin Howard, the translation by Nicholas Flay is superb. This new book from Dr. Patrice Leraut, showing new species and illustrating many new forms gives that impetus to look again at one's collection to find those subspecies which may have been overlooked. A great book necessary for all those interested in European Lepidoptera Further volumes are eagerly awaited.

Michael Marney

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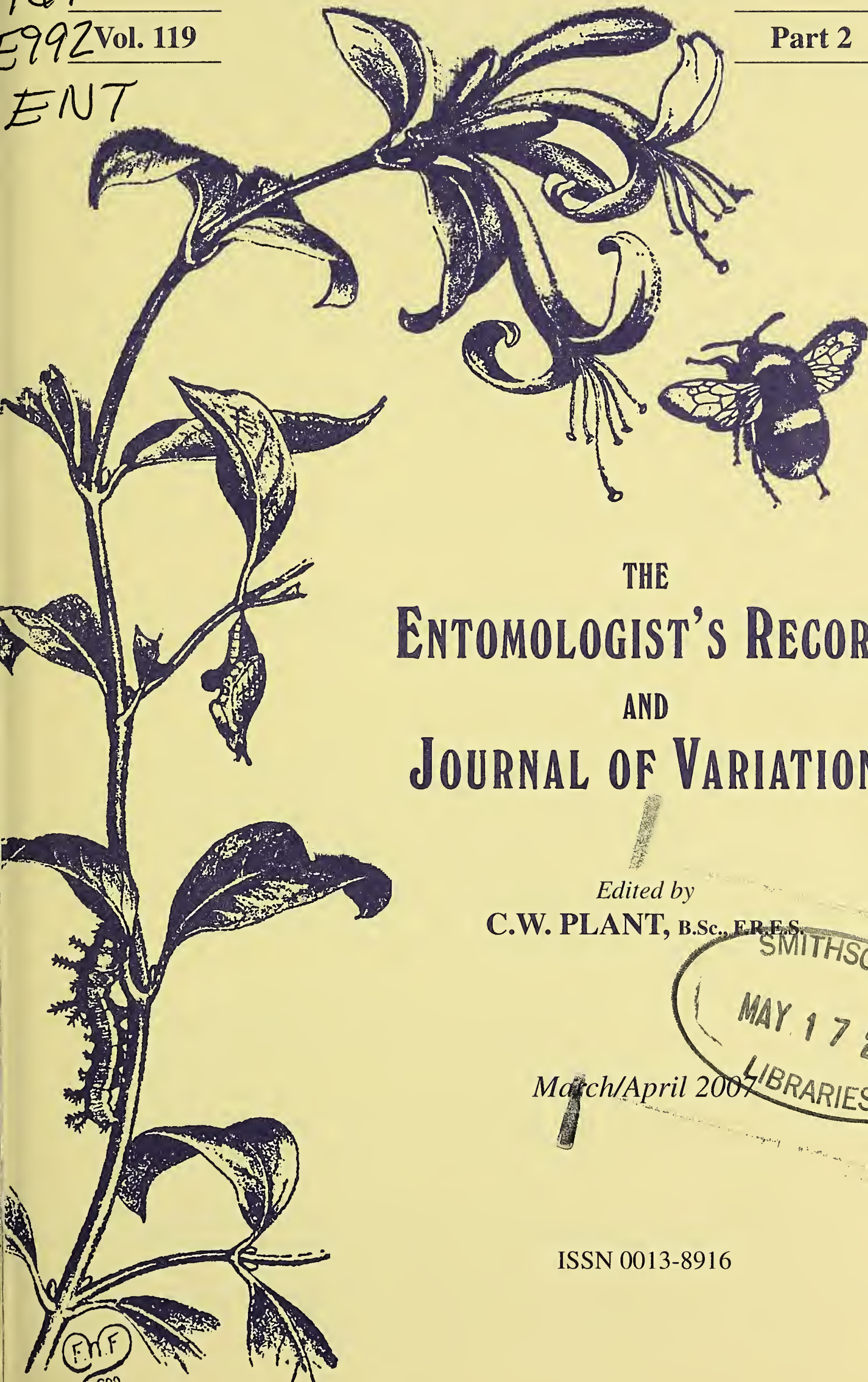

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BUTTERFLIES ON FARMLAND: THE FIRST 10 YEARS OF RECORDING AT WRITTLE COLLEGE

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Abstract

Butterflies were monitored over a 10 year period on two transects at Writtle College, Essex, UK. The transects were established in 1996 using the criteria established for the National Butterfly Monitoring Scheme (BMS). Numbers of butterflies observed have varied from a high of 2875 in 1997 to a low of 1215 in 2002. Overall 10 species (42%) are in decline, three (12.5%) are increasing, eight (33%) are stable while three species (12.5%) have been lost. Reasons suggested for these changes are varied and complex. An overall downward trend in abundance has occurred even though the College estate joined the Countryside Stewardship Scheme in October 1996, had a Woodland Grant Scheme agreement on certain sections and several areas of wildflower meadow had also been created.

Introduction

The agricultural landscape has changed dramatically since the 1940s mainly due to the intensification of arable systems (Dover, 1997). Much has been lost including 97% of lowland flower-rich grassland, 40% of lowland heath and 80% of chalk and limestone grassland (Asher *et al.*, 2001). Up to the introduction of the Countryside Stewardship Scheme (CSS) in the 1990s, hedgerows had also suffered with an estimated 67% loss in England (Asher *et al.*, 2001) and many more managed in a non wildlife friendly manner by regular trimming.

These losses plus the use of pesticides and fertiliser during farming operations (Boatman, 1992), the change from haymaking to silage and the intensification of forestry operations has meant further fragmentation of semi-natural habitats (English Nature, 1995). This has had a negative effect on the native flora and fauna which inhabits farmed areas.

Thomas *et al.* (2004) identified that 71% of British butterfly species have declined over the last 20 years compared to reductions in species richness of 54% in native birds and 20% in plants. It is therefore suggested that butterflies are more sensitive to habitat change and destruction and could be used as early warning indicators of biodiversity loss.

A method for surveying butterflies was established in 1976 with the creation of the Butterfly Monitoring Scheme (BMS) (Pollard & Yates, 1993). This scheme was used by the Centre of Ecology and Hydrology (CEH) to monitor butterflies at over 100 sites across the UK (Sparks *et al.*, 2000). These, along with at least 500 additional transects undertaken for Butterfly Conservation (Asher *et al.*, 2001) are the best indicators of butterfly change. However, most of the sites involved in the scheme are nature reserves or other protected areas. Very few sites are on farmland and knowledge of butterfly population in these areas is limited (Sparks *et al.*, 2000).

As farmland constitutes 65% of the land area in Essex and is potentially a very valuable habitat, this information forms an important indication of the health of wildlife in the county.

The aim of this paper is to ascertain the main changes in butterfly abundance over 10 years on the predominantly agricultural Writtle College estate in Essex, UK.

Methods

Writtle College is located in the south-east of England, two kilometres west of Chelmsford in Essex (TL 670070). The College estate extends over 210 hectares and consists of agricultural, horticultural and conservation areas with landscaped amenity sites in the College grounds. From the mid 1970s, many conservation areas have been established and these include mixed broadleaf plantations, wildflower meadows in field corners and re-instatement of hedgerows along old field boundaries (Field & Gardiner, 2001).

The method used for surveying butterflies was adapted from that used in the Institute of Terrestrial Ecology's (now CEH) BMS (Pollard & Yates, 1993). This involves recording all butterflies seen within five metres of an observer whilst walking a set transect route, when the weather conditions are suitable. In 1996 two transects were created on the estate, the College Transect and the Lordships Transect (Table 1). These two routes, 5993 m in length, covered a large proportion of the farmed estate and the conservation areas, following the field boundaries where butterflies would be concentrated. The College Transect was divided into nine sections comprising different habitat types whilst the Lordships Transect had eight sections. These two transects were taken into the BMS scheme from 2001 and formed some of the few transects set up on intensively managed farmland.

The surveys were conducted using the criteria outlined in Pollard & Yates (1993) once a week from April through to September for ten years beginning in 1996. A total of 26 weeks were to be surveyed each year although in most years unfavourable weather meant some surveys had to be abandoned. In the BMS because of the difficulty of distinguishing *Thymelicus lineola* and *Thymelicus sylvestris* in flight, both species were recorded combined as *Thymelicus* species. Data for both species are also combined in the results. The scientific names follow those in Asher *et al.* (2001).

Each monitoring year on the Writtle transects (data for both combined) and the BMS (data for all BMS sites n UK combined) was given a rank according to the total butterfly abundance. The year with the highest number of butterflies recorded was given a rank of 1, and year with the lowest abundance a rank of 10. Spearman's rank correlation (r_S) was used to compare the ranks for both the Writtle data and the BMS data to ascertain whether the trends observed were comparable. Spearman's rank correlation was also used to compare the total number of butterflies each year with the total rainfall in the preceding summer (April-September) to determine if abundance is affected by rainfall as in the studies of Pollard (1988).

To ascertain if butterfly species were substantially declining or increasing the total number of butterflies per year for each species were either compared for the periods

1996-2000 and 2001-2005 or 1996-1999 and 2000-2005 using Mann Whitney *U* test. The periods compared differed because species have declined substantially since either 1999 or 2000 and the statistics needed to reflect this. To examine fluctuations in abundance for selected species, Chi-square (χ^2) analysis was used. Observed and expected butterfly numbers for each year were compared.

Results

The total number of butterflies observed on the transects has varied from a high of 2875 in 1997 to a low of 1215 in 2002. There is a strong relationship ($P<0.01$, $r_S = 0.88$, $n = 9$) between the number seen per year on the Writtle transects and the number seen per year on the BMS transects. The species richness has fluctuated between 24 in 1996 and 18 in 2005 (Table 2). Seventeen species have been recorded every year but three species have disappeared in the last few years. *Lasiommata megera* and *Aphantopus hyperantus* have not been observed since 1997 while *Aricia agestis* has not been seen since 2000. Two species, *Cynthia cardui* and *Colias croceus*, were occasionally recorded in years when high numbers of migrants reached UK shores and *Lycaena phlaeas* was not recorded on the transects every year but is known to be in low numbers in certain areas across the estate.

Several species have sustained reductions in abundance over the 10 year period (Table 3). *Ochlodes venata* has significantly reduced since 1999 ($P<0.05$, $U = 1$, $n = 4, 6$) while *Anthocharis cardamines* has significantly reduced ($P<0.05$, $U = 3$, $n = 5, 5$) since 2000. *Inachis io* abundance has also significantly reduced ($P<0.01$, $U = 0$, $n = 5, 5$) since 2000.

There have been several species where the abundance has increased over the 10 years. *Pararge aegeria* abundance has increased significantly ($P<0.01$, $U = 0$, $n = 4, 6$) since 1999 as has abundance in both *Polygonia c-album* ($P<0.05$, $U = 2$, $n = 5, 5$) and *Maniola jurtina* ($P<0.01$, $U = 0$, $n = 5, 5$) since 2000.

Two species have seen large fluctuations in abundance over the period. *Aglais urticae* abundance has varied significantly ($P<0.01$, $\chi^2 = 31$, $n = 10$) from 438 in 1997 to 1 in 2001 before rising again to 284 in 2004. *Coenonympha pamphilus* abundance has varied from 69 in 1996, 1 in 1999/2000/2002, 0 in 2001 and then back to 25 in 2005 (Table 3).

There was a significant relationship ($P<0.01$, $r_S = 0.85$, $n = 9$) between butterfly abundance and low rainfall during the months April to September of the previous year (Table 2). Out of the 24 species observed over the ten years 10 were in decline, three were increasing, eight remained stable and three were lost.

Discussion

The relationship shown between the Writtle transect data and the BMS data suggests that fluctuations identified at Writtle are generally reflect the changes happening throughout the UK. The species richness has reduced by three species when account has been taken of the migrant species. The first species lost was *L. megera,* and this follows a national decline in inland sites (Asher *et al.*, 2001). The loss of

Table 1. Habitat type and management regimes for the two transects.

College Transect Section	Habitats	Management	Lordships Transect Section	Habitats	Management
1	W M	Cut path (autumn)	A	W S A	Cut grass margin
2	H M	M cut for hay	B	H A	Cut grass margin
3	H G	Grazed	C	H A	Cut grass margin
4	W A	W non-intervention	D	H M	M cut in Autumn
5	H M G	Cut and grazed	E	H	Hedge coppiced
6	W H A	Arable	F	H A	Cut grass margin
7	H A	Arable	G	H O	Cut track
8	M	Cut for hay	H	H V	Verge cut in Autumn
9	H S/S	S/S cut in August			

Key:

W = Woodland H = Hedgerow A = arable field
S/S = Set-aside M = Grassy meadow G = Grazed pasture
S = Scrub O = Orchards V = Roadside verge

Table 2. Butterfly abundance and species richness.

Year	Number of Butterflies	Species richness	Rainfall Apr-Sept (mm)
1996	2664	24	161.3
1997	2875	22	226.7
1998	1846	20	352.9
1999	1793	19	285.5
2000	1648	21	346.5
2001	1409	18	384.3
2002	1215	19	272
2003	2349	20	181.3
2004	2729	20	339.1
2005	2168	18	427.2

Table 3. Individual species abundance 1996-2005.

Species	Total number Seen	High	Low	Change	Number of years seen
Aglais urticae	2005	438	1	↓	10
*Cynthia cardui**	256	195	0	→	7
Inachis io	454	105	9	↓	10
Polygonia c-album	231	58	6	↑	10
Vanessa atalanta	240	63	5	↓	10
Aphantopus hyperantus	5	3	0	X	2
Coenonympha pamphilus	148	69	0	↓	9
Lasiommata megera	10	7	0	X	2
Maniola jurtina	4158	708	165	↑	10
*Pararge aegeria**	1352	248	25	↑	10
Pyronia tithonus	3576	614	127	↓	10
Anthocharis cardamines	236	45	9	↓	10
*Colias croceus**	13	9	0	→	3
Gonepteryx rhamni	41	12	2	→	10
Pieris brassicae	1204	219	41	→	10
Pieris napi	1677	466	21	↓	10
Pieris rapae	2394	493	111	→	10
*Aricia agestis**	63	56	5	X	3
Celastrina argiolus	135	58	4	↓	10
Lycaena phlaeas	25	8	0	↓	5
Ochlodes venata	406	199	1	↓	10
Polyommatus icarus	201	34	10	↓	10
Thymelicus spp.	2251	528	45	→	10

* Not seen in 1976 survey (Neate, 1979)

X Lost from the site between 1996-2005

↑ Increasing in numbers

→ Numbers stable

↓ Decreasing in numbers

A. hyperantus was due to only a small area of suitable habitat being available. This was increased but the numbers were already too low to sustain the population. *A. agestis* has been increasing and decreasing its range in Essex over the last 15 years (Asher *et al.*, 2001) and was seen for three years on the transects before disappearing again.

Three species have reduced in numbers, *O. venata,* having the largest fluctuations reducing from a high of 199 to a low of one. The reasons for these changes are not known as there was plenty of long grassy habitat which remained uncut and there were nectar sources nearby but it follows the national trend (Greatorex-Davis & Roy, 2005). *A. cardamines* has also reduced in numbers but this may be due to a run of poor spring weather over the last few years. The reason for the decline of *I. io* was unknown but reflects a national trend (Greatorex-Davis & Roy, 2005).

Two species, *A. urticae* and *C. pamphilus* have had severe fluctuations during the last 10 year period. *A. urticae* had declined across the country but the decline was identified one year earlier in agricultural habitats (Field, 2002) than on the BMS transects. This species has since recovered to pre-decline numbers. *C. pamphilus* abundance was very low in the period 1999-2001 but since has made a slight recovery. The decline may have occurred because *C. pamphilus* favours short turf (Asher *et al.*, 2001) and those years had high summer rainfall which encouraged taller grass growth.

Three species have significantly increased in numbers over the 10 years. The first species, *P. aegeria*, which was not present on the site in 1976 (Neate, 1979), has been increasing across the country (Asher *et al.*, 2001) and from only small numbers at the start of the period was the third most numerous butterfly by 2005. The second species to increase in numbers was *M. jurtina.* This was not surprising as many wildflower meadows and pastures have been created on the College estate over the last 15 years (Field & Gardiner, 2001), thus extensive favourable habitat has become available. *P. c-album,* the third species to increase was following an increasing national trend which may be due to the more wildlife friendly management of hedgerows in agri-environmental schemes such as the CSS.

Pollard (1988) suggested that there was a relationship between high butterfly abundance and low rainfall in the previous summer. The data collected from these transects and the Writtle College weather station also suggests such a relationship. Prime examples being 1997 with 2875 butterflies seen and a low rainfall of 161.3 mm in 1996 and 2004 with 2729 butterflies seen and a low rainfall of 181.3 mm in 2003.

Thomas *et al.* (2004) identified that 71% of all British butterflies were reducing in numbers but that included a wide range of our most threatened butterflies. This study at Writtle confined to only common butterflies suggests that 42% are declining, with 33% steady, 12.5% increasing and 12.5% lost from the College estate in the last 10 years. What must be remembered when looking at these figures is that everything possible has been done to manage the estate in a wildlife friendly manner for the last 15 years. The farm has been in CSS since 1996. During that time 2 and 6 m grass margins have been established, some hedges planted, others managed by coppicing and laying, and areas of woodland have been planted under the Woodland Grant Scheme. The field margins set up under the CSS were generally successful in increasing butterfly abundance but could have been far better habitats for butterflies had there been nectar sources available in the mixtures sown (Field *et al.*, 2005a; 2005b; 2006; in press, Field & Mason, 2004a ; 2004b; 2005).

Conclusions

The analysis of long term data has shown worrying trends for common butterflies. Nearly 55% of species seen on the Writtle College transects are either in decline or have already been lost over the 10 years. This was all happening on a site managed positively for wildlife and especially butterflies. If such a large loss can occur on favourably managed farmland what can the effects be in the wider countryside?

The grassland habitats established at Writtle were not on a small scale; they were field size and were interconnected by hedgerows, ditches, streams, permanent set-aside and wide grassy margins. One problem with some areas of the grass margins and pastures was that they were sown with commonly used cultivars of agricultural grasses and wildflowers. Recent research (Field, 2005) suggests that the use of native grasses and wildflowers, even though more expensive, can produce habitats which support four times the number of butterflies and significantly greater species richness.

Most of the BMS sites are protected habitats, Sites of Special Scientific Interest or nature reserves, and as such hold strong butterfly populations. Using *A. urticae* as an example, declines were observed in the wider countryside first (Field, 2002) followed a year or so later by declines on the other BMS transects. That might suggest that for common butterflies the wider countryside is a better indicator of the health of a species than data from protected habitats.

If the current rate of loss continues for the next 20 years another 4-6 species could be lost at Writtle and any of the 10 species in decline are at risk. This does not take into account any future effects global warming might have on habitat change and butterfly abundance and species richness.

Acknowledgements

The authors would like to thank other recorders such as Graham Watkins, Michelle Gardiner, Zoe Ringwood and Emma Sellers who have walked the transects on various occasions.

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Cornifrons ulceratalis (Lederer, 1858) (Lep.: Crambidae) new to France and *Syncopacma albifrontella* (Heinemann, 1870) (Lep.: Gelechiidae): first published French record

Perhaps being located at a geographical crossroads gives rise here to a climate different to that in other parts of south-west France? Squeezed between the Pyrenees and the *Massif Centrale* a corridor is formed, the Plaine Toulousaine, stretching as far north as Northern Tarn where we live. Winds from the south and south-east sweep up this gap, bringing with them warm air from the Mediterranean region. Thus we have both Mediterranean and mountainous species of Lepidoptera passing through. For this reason we keep a daily record of the temperature, wind force and

direction. When the wind is continuously from the east/south-east with fairly stable temperatures in the mid to high twenties, we keep a special look-out at our moth traps in the garden. In the past, this has rewarded us with surprise discoveries of *Heliothis nubigera* (Eastern Bordered Straw) and *Lacanobia splendens* (Splendid Brocade), but we surpassed this in the autumn of 2006 with two moths apparently entirely new to the French fauna.

Cornifrons ulceratalis: Prior to 27 October 2006, the wind had been blowing from the south-east and south for several days, with a temperature of 26°C max to 17°C min. Nothing much of interest was flying, that night, but at 1.00 am, resting on the side of the trap was a small moth completely unknown to us. As we moved in for a closer look it flew off, and was put down as a question mark. When we came to close down the trap in the morning, there it was at the bottom of the trap. It was duly captured and set and digital images were e-mailed to Colin Plant and Jon Clifton for an opinion; Jon also roped in Harry Beaumont; all three came back almost immediately with the same name - *Cornifrons ulceratalis*, with Colin's opinion based on first hand experience of the species and specimens in his collection. This moth is not included in the latest published list of French Lepidoptera (Leraut, 1997. *Liste Systématique et synonomique des Lépidoptères de France, Belgique et Corse* 2nd edition) and examination of the Fauna Europaea web site indicated that there were no more recent unpublished records.

Syncopacma albifrontella: Jon Clifton and his family made a visit to Graddé at the beginning of September, 2006, and on the night of 2 September the weather appeared favourable for mothing – at 30°C maximum and 18°C minimum, the wind from the south tending towards south-west. That night, we caught many examples of *Syncopacma* and a selection was taken for further study; Jon returned to UK and commenced the identification by means of genitalia dissection. Amongst the material collected was a male *Syncopacma albifrontella* which Colin Plant identified from the genitalia slide prepared by Jon. This species is not listed for France in Leraut's first French checklist (1980), but does appear in the1997 second edition (*op. cit.*), though it is not immediately noticed since it is included (as species number 1758) in the genus *Stomopteryx*, for reasons which are not immediately apparent. The entry for this species on the *Fauna Europaea* web site was prepared by Dr Ole Karsholt and this also shows its presence in the country, but a search of the literature has failed to reveal any published reports. Dr Karsholt has, however, most kindly informed us that the basis for his inclusion of *Syncopacma albifrontella* as a French species is the presence of three males in the collections at the Zoological Museum of Copenhagen labelled '*France, Dept. Hautes Alpes, Valle de la Romanche, les Freaux, 1400 m, 27.iii.2000, leg. P. Skou*'. These do not appear to have been published in the literature and the opportunity is taken to correct that omission here.

We are most grateful to Ole Karsholt, Zoologisk Museum, Copenhagen for clarifying the basis of his inclusion of *Syncopacma albifrontella* as a French species on the Fauna Europaea web site and for allowing us to include reference to the

Copenhagen Museum specimens here. We would like to express appreciation to our friends Colin Plant and Jon Clifton for all their help and assistance and also to Mr Harry Beaumont for his consideration of the photographs via Jon. — MICHAEL & BRENDA MARNEY, Graddé, 81140 Campagnac, France (E-mail: marney.michael @wanadoo.fr).

Nest building and prey stocking in *Crossocerus megacephalus* (Rossius) (Hym.: Sphecidae)

Hatfield Forest in Essex is a large area of ancient woodland and wood pasture near Bishop's Stortford. On several occasions during the summer months of 2006, Hymenoptera were seen around the upright remains of some of the dead birch, beech and oak trees. On 21 July 2006, a small hole, approximately 5mm in diameter, was spotted in dead stock arising from a hazel *Corylus avellana* coppice. A small pile of wood dust around the base of the stock indicated recent activity. The stock was investigated and it came away easily in its entirety. The dry, dead wood was split along its length and inside was a tunnel with three brood chambers, two of which were empty. The third chamber was tightly packed with what appeared to be small flies. The tunnels also contained two pale amber, hymenopteran cocoons. The spilt stock was taped back together and taken home.

The next day, the extent of the nest within the stock was investigated under a dissecting microscope and the pupae were removed. Unfortunately, one of the pupae had been damaged when the stock was split open. The intact pupa was moved to a glass vial and left until the adult insect emerged. The three brood chambers were inspected; two contained nothing excect frass, whilst the third was stocked with flies and sealed with a plug of wood-dust. There were 15 flies in total and all appeared to be the same species, later confirmed by Jon Mellings who identified them as *Chrysopilus asiliformis* (Preyssler) (Rhagionidae). One week after the nest was closely examined, the pupa hatched and an adult sphecid emerged; this was identified by Jon Mellings as *Crossocerus megacephalus*. To the author's knowledge, this is the first time a prey species has been identified for *C. megacephalus*. However, the observation does not provide any information on the prey preferences of this wasp. The fly could have occurred in profusion near the nest – alternatively the wasp may selectively hunt this small species. Regardless of the true nature of this relationship, the fact remains that a small wasp excavated an impressive nest in dead wood, and if the contents of the intact brood chamber are to go by, stocked it with at least 40 *C. asiliformis*. The possibility also exists that a mated pair of *C. megacephalus* work together to construct the nest and stock it with flies as two of these wasps were often seen around the same hole. If a pair of these wasps devoted their adult energies to a single nest then the reproductive strategy of this species could to be to produce a very small amount of well provisioned young.— ROSS PIPER, 17 Southmill Court, Southmill Road, Bishops Stortford, Hertfordshire CM23 3DA. (E-mail: ross_piper@yahoo.com).

URESIPHITA REVERSALIS (GUENÉE, 1854) (LEP.: PYRALIDAE) NEW TO BRITAIN AND EUROPE

[1] TONY DAVIS AND [2] DOUG MILLER

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Abstract

Uresiphita reveralis Guenée (Lep.: Pyralidae) is added to the British fauna on the basis of a specimen taken in Somerset during September 2006; evidence suggests that this species has not previously been reported in Europe. The adult moth is illustrated in colour and details of its life history and distribution are given. The likely origin of the Somerset specimen is discussed.

Introduction

On the night of 23 September 2006, National Moth Night, DM ran a Robinson MV trap in his garden at Westonzoyland, Somerset (O.S. grid reference ST 3434). The trap was placed next to the cream-coloured garage wall as some of the more unusual moths do not enter the trap and are found resting on the wall. Westonzoyland is located on the edge of the Somerset Levels which has very few trees or shrubs and can be affected at times by strong winds. DM's garden can best be described as untidy and is thus a haven for wildlife.The weather was warm with a little rain at times and a light wind from the south-east. Interesting moths recorded during the night included Four Spotted Footman *Lithosia quadra* (L.), *Palpita vitrealis* (Rossi), Silver Y *Autographa gamma* (L.), Vestal *Rhodometra sacraria* (L.), *Udea ferrugalis* (Hb.) and *Nomophila noctuella* (D.& S.) as well as the first Pinion Streaked Snout *Schrankia costaestrigalis* (Steph.) for the site. A single *Uresiphita reversalis* was immediately seen upon checking the trap. It looked familiar to DM, but checking through all the books available to him failed to produce a suitable match. The specimen was passed to David Evans who gave it to TD at the Annual Exhibition of the British Entomological and Natural History Society (BENHS). The unset specimen was shown to various lepidopterists at the BENHS exhibition, but an identity was not forthcoming. Upon relaxing, it was immediately apparent that it was related to *Uresiphita gilvata* Fabr. However it was significantly smaller than typical *U. gilvata*, had greatly reduced black on the hindwing and a relatively poorly marked forewing; a scan of internet images suggested that *U. reversalis* was a good match. After setting, the moth was photographed and the image sent to Martin Honey and Michael Schaffer at the Natural History Museum, London, who kindly confirmed the identification.

Recognition

The wingspan of the Somerset specimen was 26.5 mm, which is below the range of 29-37 mm given for *U. gilvata* by Goater (1986). Unfortunately, Munroe (1976)

does not give a size range for *U. reversalis* and it seems likely that there may be a small overlap in size between the two species. Both species have an orange-yellow hindwing with a blackish border but the border of *U. reversalis* is usually limited to the apex and rarely extends as far as half way along the border. In *U. gilvata* there is frequently a complete blackish border although it can occasionally be reduced, as in the illustration in Goater (1986). A couple of specimens in the Natural History Museum collections have the dark markings reduced to the hindwing apex (Martin Honey, pers. comm.).

The forewing of *U. reversalis* is generally poorly marked and is often more orangey-brown than *U. gilvata*. The central part of the forewing is often the same colour as the rest of the forewing and if a dark bar is present, it is just a slightly darker shade of brown.

Biology and distribution

Munroe (1976) states that the larvae feed on the leaves and tender bark and shoots of broom, *Genista* sp., lupines, *Lupinus* sp., Wild Indigo, *Baptisia tinctoria* (L.) Necklace Pod, *Sophora tomentosa* (L.), honeysuckle *Lonicera* sp., and other plants and shrubs, especially legumes. Leen (1995) gives the distribution as being from Nova Scotia, Canada, down the eastern side of North America into parts of Mexico and extending west into Arizona and California. The current distribution in central and northern California is attributed to an expansion of range in the early 1980s. Munroe (1976) states that in the northern part of the range there are years of sporadic abundance, possibly sustained by migration from the south and that it is an occasional pest of nursery stock and ornamental plantings.

There is no mention of this species in Karsholt & Razowski (1996) or on the Fauna Europaea website (http://www.faunaeur.org) so this appears to represent the first European record. It is suggested that it is allocated a logbook number of 1369a.

Munroe (1976) gives the flight period as being from February to November in the southern part of its range.

Origins

Whilst it is always impossible to know for certain the origins of a particular specimen, and the fact that *U. reversalis* can occasionally be a pest of nursery stock points towards accidental importation, there are several factors which are indicative or natural arrival. The relatively rural location of the capture, on the western side of Britain during September is more indicative of natural arrival and fits with the predominant pattern of arrival of Nearctic birds and insects. Of particular interest was the discovery of two Buff-breasted Sandpipers *Tryngites subruficollis* and a Semipalmated Sandpiper *Calidris pusilla* at Slimbridge on 22 September. Slimbridge is approximately 80 kilometres north-east of Westonzoyland and the arrival of these birds indicates that the air currents in that part of the country were suitable for transatlantic vagrancy.

Plate A. *Uresiphita reversalis* (Guen.), Westonzoyland, Somerset, 23.ix.2006, Leg. D. Miller.
Photograph © Keith Tailby

Acknowledgements

We would like to thank Martin Honey and Michael Schaffer of the Natural History Museum, London for confirming the identity of the specimen. Barry Goater and Jim Porter kindly made relevant literature available to us. We are also grateful to Frantisek Slamka (Bratislava) for confirming that there do not appear to be any previous records of this species in Europe. We would also like to thank Simon Woolley for providing the information on Nearctic bird arrivals and Keith Tailby for photographing the specimen.

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The advantages of 'Doing the Dirt": New and interesting moth records for Hertfordshire & Middlesex

When I look in the cabinets of 'proper' entomologists, I always feel slightly jealous of the rows of immaculate specimens – all pristine and shiny. Many of the specimens I have are retained in my collection are there merely in support of a genitalia slide that I have made from various specimens. Few are immaculate, some are passable and others look a lot like car crash victims! A great many of the specimens that I receive tend to arrive in various boxes marked 'Micros 2006' or the like (sound familiar?). You know most of them will be common, but there is always the prospect of finding something exciting in these 'boxes of dirt'. Among the Hertfordshire (VC 20) and Middlesex (VC 21) specimens supplied to, or taken by, me this year the following were notable for the reasons stated:

New to Hertfordshire (VC 20)

Argyresthia cupressella Wals.: Bishops Stortford, 2.vi.2005 (J. Fish & J. Reeves);

Acleris logiana (Cl.): Bishops Stortford, 29.1.2005, (J. Fish & J. Reeves).

New to Middlesex (VC 21)

Stigmella tiliae (Frey): Fir & Pond Wood Nature Reserve, mines, 19.x.2006 (R. Terry);

Niditinea piercella (Bent.): Fir & Pond Wood Nature Reserve, 16.vi.2006, (R. Terry);

Argyresthia cupressella Wals.: Wood Green, 9.vi.2006 (M. Ashby);

Colephora vestianella (L.): Greenford, 06.vii.2006 (A. Culshaw);

Cochylis molliculana Zell.: Horsenden Hill, Greenford,21.vi.2003 (R. Terry). Predates the record on file from Kensington Gardens, 2.viii.2005 (T. Freed).

Epinotia caprana (Fabr.): Fir & Pond Wood Nature Reserve, 1.ix.2006 (R. Terry);

Strophedra niditana (Fabr.): Fir & Pond Wood Nature Reserve, 28.vi.2006 (R. Terry);

Cydia conicolana (Heyl.): Wood Green, June 2006 (M. Ashby);

Hymenia recurvalis (Fabr.): Barnet, 28.x.2006 (R. Terry).

Significant updates to the Middlesex fauna

1. Species for which the only known previous record was included in the distribution map in the relevant volume of *Moths and butterflies of Great Britain and Ireland* (Harley Books) but is unsupported by full data.

Metzneria lappella (L.): Wood Green 10.vii.2006 (M. Ashby);

Gelechia scotinella (H.- S.): Fir & Pond Wood Nature Reserve, 5.viii.2006 (R. Terry);

Cnephasia longana (Haw.): Wood Green, 29.i.2006 (M. Ashby).

2. Records that significantly update the lists presented by Colin Plant (2002. A provisional list of the microlepidoptera of Middlesex (VC 21). *London Naturalist* **81**: 123 – 186 and 2004: Additions and corrections to the provisional list of the microlepidoptera of Middlesex (VC 21). *London Naturalist* **83**: 107 – 109.

Neofriseria singula (Stdgr.): Fir & Pond Wood Nature Reserve, 5.viii.2006 (R. Terry);

Lobesia botrana (D.& S.): Wood Green, 20.vii.2006. (M. Ashby); Last recorded at Hampstead, 1985;

Ancylis mitterbacheriana (D.& S.): Fir & Pond Wood Nature Reserve, 3.v.2006 (R. Terry). Last recorded Ruislip, 1959;

Ancylis laetana (Fabr.): Barnet, 9.viii.2006 (R. Terry). Last recorded Ruislip 1959;

Paralipsa gularis (Zell.): Wood Green, 13.vi.2004 (M. Ashby). Last recorded at Finsbury Park, 1932 and Ruislip, 1957.

I am grateful to Andy Culshaw, Marcel Ashby, James Fish and Julian Reeves for permission to include the records made from specimens collected by them in this summary. I also thank Colin Plant for double-checking some of the identifications made from my slides of genitalia and for confirming the status of the species listed.
— Rachel Terry, 92 Woodville Road, Barnet, EN5 5NJ (E-mail: swordgrass@btinternet.com).

Editorial Comment: Rachel will probably hate me for saying it, but as a county recorder I would think the appellation 'proper entomologist' would be far more appropriately applied to her good self and to anyone else who recognises the significance of the battered, scale-less 'bits of dirt' left over in the bottom of the moth trap after the mere collectors have had their turn!

Late-flying Silver-ground Carpets *Xanthorhoe montanata* D. & S. (Lep.: Geometridae) in Banffshire

Philip Gould's note (*Ent. Rec.* **118**: 227) reporting this species in a Rothamsted trap at Ben Eighe in West Ross on the late date of 2-5 September 2005 prompted me to check my own records for Banffshire. In nine of the 17 years from 1990-2006, I recorded this species in September at my home address. Most moths were in the first week, the latest date being 11 September 2002.

Although the flight time given in the literature for this species is from mid-May to late July, in northern Scotland it emerges about a month later. My average date of first sighting during the years mentioned was 15 June (range 5-27 June), and the whole flight period is correspondingly delayed by about a month. Moths peak in July, but stragglers continue into early autumn in most years.

It is very unlikely that such late individuals constitute a partial second generation. Those seen here are invariably female and often below normal size. Perhaps they are caused by some developmental abnormality, as they are much more frequent in cool summers than in warm ones. For instance, there were no September sightings here in 2003 or 2006, years when a wide range of other species produced unusual second broods. Indeed, the last sighting in 2003 was on 5 August, my earliest-ever final date.

Also, I am currently rearing this species in captivity. From eggs laid in June 2006, the caterpillars developed very slowly and are still barely a centimetre long in early November.— Roy Leverton, Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

Notes on the early stages of *Elachista regificella* Sircom, 1849 and *E. tengstromi* Kaila *et al.*, 2001

On 26 April 2006, Norman Lowe and I visited Coed Fenni-fach, an area of woodland about 3km west of Brecon, by kind permission of the landowner, David Jones Powell. Here we found *Luzula sylvatica* and *L. pilosa* in plenty and in about equal quantity. In the previous year's leaves of both plants were the typical inflated, puckered mines of *Elachista* spp. of the *regificella* Sircom group (Plates B & C).

Plate B. Larval mine of *Elachista tengstroemi*, Kaila, on *Luzula pilosa*.

Plate C. Larval mine of *Elachista regificella* Sircom, on *Luzula sylvatica*.

The larvae were slow to mature, having formed new mines in the current year's leaves, but eventually vacated their mines and pupated. Imagines of *E. regificella* emerged between 11 and 19 June from the *L. sylvatica* stock and *E. tengstromi* between 22 June and 2 July from that on *L. pilosa*. The identity of the moths was confirmed by dissection of the genitalia. Although only a small number were reared, the dates of emergence may indicate that *E. regificella* is on the wing earlier than *E. tengstromi*.

The larvae showed some differences in the final instar and are described as follows:

E. regificella. Head pale honey coloured, mouth-parts a little darker; prothoracic and anal plates and thoracic legs likewise; body greenish black.

E. tengstromi. Head pale honey coloured, mouth-parts dark brown; prothoracic and anal plates and thoracic legs translucent yellowish green; body dull green, tinged yellowish ventrally.

Thanks are due to Ian Thirlwell for photographing the mines.— JOHN R. LANGMAID, Wilverley, 1 Dorrita Close, Southsea, Hampshire PO4 0NY.

Hazards of butterfy collecting. Bumbuna Butterfly Survey – Sierra Leone, May 2006

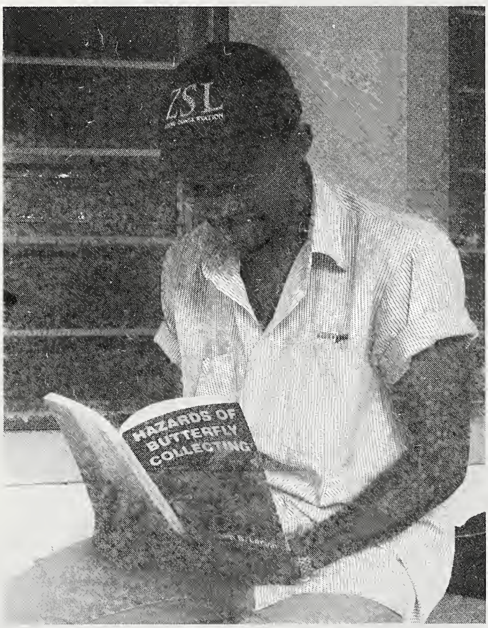
We stood at the foot of the giant Bumbuna Dam in northern Sierra Leone, looking up-river. It promised to become a good day for butterflies. The morning mist was clearing and rain apparently did not threaten. As part of World Bank procedures an Environmental Impact Assessment had to be performed before the reservoir could be flooded. I was contracted to analyze the local butterfly fauna. The main threatened habitats were small patches of riverine forest fringing the Seli River, all of which would be flooded by the inundation of the reservoir, and was unlikely to regenerate. We were three people – myself, my field assistant Nyakeh Mattia, and our driver Mohammed Deen.

We were planning a walk that would take us further north than we had ever been in the narrow band of riverine forest, nearly all of it in poor condition. Various permutations of my team had been in the area several times before. Very little riverine forest still remained and most of that was inaccessible, so this area ("Rashida's Forest" – as it was named after another team member) was subjected to in-depth study. We walked the first few kilometres as fast as we could in order to reach the parts of the forest that we knew less well and reached what seemed to be the highest quality bits. We gave these a thorough going-over and then decided to continue on into unknown territory. Our aerial photographs indicated that some forest patches would be found, but the photos were 15 years old, and they might have gone by now. Virtually all forest in the valley had been destroyed in favour of cultivation of mountain rice. Hundreds of square kilometres of steep hillsides were completely denuded and bits and pieces of forest remained only in inaccessible ravines and along the river. This destruction had little to do with the dam project.

Similar processes have reduced the forest cover in Sierra Leone to less than 5% of its original area – even worse than in most West African countries.

Not wanting to put all our eggs in one basket, Mohammed was left in the good forest while Nyakeh and I would explore the unknown. Mohammed, being our driver, could have done as drivers do: stay behind and sleep in the car. But he had become keen on butterfly collecting and could now tell his *Charaxes* from his *Euphaedra*. A few days ago, when nothing new was being found, I decided to knock off early: we had not had a break for three weeks. "We can't go now", protested Mohammed, "we haven't caught enough butterflies". My chimpanzee-studying colleague, Chris Ransom, told me that each time he came to our office, Mohammed was engrossed in my book *Hazards of Butterfly Collecting* – a collation of the stories published in this journal. He had also become quite proficient at finding the relevant plates in *Butterflies of West Africa* during our butterfly identification sessions. In short, Mohammed was not your typical driver.

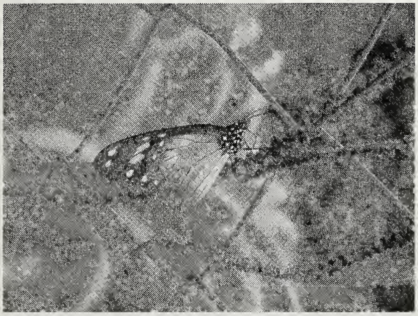
Nyakeh and I pushed on along the narrow path. There was virtually no forest left, but in places there was quite tall bush-fallow (i.e. at least 15 years old), and we caught a few interesting species there. After that ecological conditions deteriorated. Was it worth continuing? The tendency is always to continue – there might just be a crock of gold around the next twist of the river. Eventually we were about an hour and half from Mohammed. Suddenly it clouded over, thunder boomed, lightning flashed, and the heavens opened up. We were wet through in minutes. At 3,700mm rainfall a year – five times more than in Denmark – the missing natural vegetation would have been rainforest [technically hyperwet evergreen forest], so you can't really complain. But an hour on a slippery track, soaked, water squishing in your shoes, and with not a single butterfly in sight is still a somewhat unsatisfactory pastime.



Mohammed bracing himself for our next field trip with *Hazards of butterfly collecting*.

The rain stopped just as we reached Mohammed, who gave us a bemused look. Rain in the area can be amazingly local and he had not received a drop. He had also caught some useful butterflies. Cloud had obscured the sun so we decided to call it a day and make our way back to the dam. Then the heavens opened up again, just as my shoes had stopped squishing. Mohammed was soon just as

drenched as we had been on arrival. A moment later, he turned towards me with a huge grin: "Hazards of butterfly collecting!" A more wonderful, quick-witted, and apposite comment could hardly be imagined – it collected a round of laughter and made the hour's wet walk back to the car more bearable, though the shoes still squished.



Amauris damocles on our dead bait of heliotrope on the boundary fence

The car stood untouched by rain just 200m from where we were still being drenched. We had a drink and prepared to get back to base, when I remembered that I had pulled up a heliotrope plant to expose the roots. I had been showing my team the intricate androconial organs of the danainae and telling them of the need to tank up with pyrrolizidine alkaloids to secure sexual success. The first act of a male danaid is to fly off in search of plants containing pyrrolizidine compounds. Such plants can be scarce and localized and sometimes large numbers of males are found on a single plant – especially a damaged plant with dry bits. The heliotrope patch on the dirt road in front of the dam seemed to have the character of such a "pyrrolizi-diner", so I had decided to give it a try: "Maybe they will attract the *Amauris*." We went to have a look. Sure enough – on the crumpled heliotrope, and especially on the roots, sat eleven males of three species of *Amauris* as well as a couple of *Danaus chrysippus* Linné, 1758. Such modest success does your role as team leader no harm!

We took some fresh heliotrope back to the construction camp where we lodged and hung it on the boundary fence. Even after a week our bait was still attracting male danaids.— TORBEN B. LARSEN, UNDP Vietnam, c/o Palais des Nations, 1211 Geneva 10, Switzerland.

Lepidoptera new to the Isle of Wight in 2006

2006 was the best year in living memory for rare moths on the Isle of Wight with one species new to Britain, three new County records and five new vice-county records. These were as follows:

New to Britain:

Aedia leucomelas (L.). Totland, 11 September 2006 (Sam Knill-Jones).

New county records (Hampshire and the Isle of Wight):

Antichloris eriphia (Fabr.) Dave Dana, found pupae on Columbian bananas at Morrisons, Lake, 5 February 2006.

Dysgonia algira (L.) Totland, 12 September 2006 (Sam Knill-Jones).

Proxenus (Athetis) hospes (Freyer) Bonchurch, 19 August 2006 (James Halsey).

New Vice-county Records (Isle of Wight, VC 10):

Sophronia semicostella (Hb.) Totland, 24 June 2006 (Sam Knill-Jones).

Cochylis molliculana (Zell.) Parkhurst, 5 August 2006 (Tim Norris & Sam Knill-Jones).

Catoptria verellus (Zinck.) Bonchurch, 13 July 2006 (James Halsey).

Noctua janthina (Borkh.) Bonchurch, 26 July 2006 (James Halsey).

Coleophora albidella (D.& S.) Ningwood Common, one case found, 5 August 2006 (Tim Norris).

— Sam Knill-Jones, 1 Moorside, Moons Hill, Totland, Isle of Wight P039 OHU.

I married a Moth Man – a warning to new moth spouses

With a few notable exceptions – Mary Harrap and Sarah Bradley spring to mind – moth people are male. I think it's a collecting thing. As a child it was always the boys who climbed trees in search of birds' eggs or who had albums of cigarette cards. And I would venture to suggest that the women's involvement remains at interest level, stopping short of obsession.

Over the years I have met many moth men and realised quite early on that they are all different, both from each other and from the rest of the human race. Some might even say, well, a bit......um, no, I'll stick with 'different'. Over thirty years ago, when my husband Peter started collecting moths, after a lifelong interest, his mentor was a friend and colleague, Tim Peet, a surgeon. I was an anaesthetic nurse and many's the time that Tim would come into the anaesthetic room with: "Tell Peter to look out for..." and proceed to sketch the characteristic features of some moth on the back of the patient's notes. I sometimes wonder how subsequent surgeons might try to interpret those jottings in relation to the patient's current medical condition.

Tim gave Peter his first setting boards, pins and papers, taught him to set moths and we were off. A moth trap was bought together with a cabinet. Moth books, moth courses, moth societies ensued and.....more moth men.

I forget how Peter first made contact with David Wedd but I met him before Peter did. Peter was away from Guernsey on a moth course – where else – and had arranged for David to set his moth trap in our garden. I would switch it on each evening and David would come each morning to empty it. This wasn't the only trap he had with him. Remember how there used to competitions to fit as many people as possible into a Mini. With David, it was moth traps in a Nissan Micra. On about day three, I asked David if he would like to see Peter's collection. I'll swear there was a white trail left in the air- you know, the sort the cartoonist draws behind Tom when he's chasing Jerry. He disappeared into the moth room (yes, moth room – more ofthat below) to emerge a good hour later. Moth men do love looking at each other's collections, a procedure which, as in this case, is

accompanied by much grunting, gasps of envy and some shaking of the head and, "I'm not sure about that one" - a polite way of saying " he's got that one wrong ". David, now a much loved friend, has emigrated to Alderney where his traps are a danger to shipping.

Then came Phil Sterling. Phil is a micro man and should come with a hazard warning. You see, they all begin with macro moths, but in seemingly no time at all they become interested in the tiny ones. This means: smaller boards; smaller pins; smaller instruments; more books; another cabinet; and ...a microscope. Oh, and more space for all this. Few of these moths have common names and many are notoriously difficult to identify. Which is where Phil comes in. He identifies them. So, whenever he comes to stay, other moth men arrive with (lots of) boxes of specimens for him to look at.

The problem is, that not all can be identified by just examining the whole moth. No, the only way to separate some moths is by examining their genitalia, which have to be dissected, put on a slide and examined under a microscope This applies to some of the macros too, and for them and some of the larger micros the original microscope will suffice. But problems arise as the moths get smaller, together with their diagnostic characteristics. There is a moth in the house as I write, which is barely visible to the naked eye and can only be separated from its look-alike by counting the protuberances on the inside of its aedeagus (penis -- sort of) which has to be *turned inside out!* Yes, really. This means only one thing: another microscope. And more space for it ... and the slide cabinet, the water bath (if you don't want him boiling up bodies on the cooker), a cupboard for the chemicals needed to produce the slide, even smaller instruments and more books of course. There are actually books containing nothing but pictures of moth genitalia.

You can probably see now how things begin at a table in the dining room, move to a larger table in the spare room and culminate in a dedicated moth room.

One day a parcel of sputum pots arrived in the post. They hadn't been sent by the hospital but had come from another moth friend called Mike Dockery whom Peter had met on a moth course (of course). The pots were subsequently returned over the next few months, each containing a Large Yellow Underwing. These were material for Mike's PhD. His thesis was something to do with whether the moths rested with the right wing over the left or vice versa. Seriously.

There are many, many more of these men, some of whom I've spoken to on the phone, some I know only by name. Like David Brown who runs moth courses. Peter has been on just twelve of them so far. There's Shane from Stockport who has set up a genitalia mailing list and another Peter who is a meteorologist, and, when migrant moths land on these shores, tracks back from whence they came.

They love migrant moths and, following a migration, the Internet fairly buzzes with first sightings, most northerly sightings, largest numbers etc. The first record is the most important of all. There is nothing quite like the first record of a moth. A migrant will do but a resident is better. First ever in the country is best of all, apart from that holy grail that all moth men seek: a moth that is new to science.

The thing is, after a while, it all becomes normal and it's only when you talk about what your husband does in his spare time and see the incredulity on the faces of work colleagues and others outside this moth world that you remember just how strange it is.

Guidelines on what to expect and how to survive

- Buy him his own fridge. It's not just that he fills yours with moth pots, but they tend to have bits of grass and bird dirt on them.
- Put up extra book shelves. Although the Internet has reduced the need somewhat, books are still necessary. As a rule of thumb, the smaller the moth, the more expensive the book and the rate of price increase is exponential. Ditto microscopes.
- If you don't want him to empty the trap in the kitchen, consider giving him the garden shed, or, better still, a shed of his own. Choose the size carefully. Sometimes there will be other moth people in there with him. We have a moth shed at the end of the garden masquerading as a summer house. It's full of moth traps - four at the moment, though he's talking of another. The veranda has a variety of pots containing the foodplants of various moths. There is even a tub of sand with a large willow log stuck in it. Something to do with Phil Sterling.
- Be prepared to accommodate lots of foodplants in the garden. I've got tansy in case the Tansy Pug should pass by, masses of *Nicotiana* for the Convolvulus Hawk, thrift for Thrift Clearwings …. The list is endless.
- Learn to keep watch while he searches ladies' lavatories. They seem to attract the best specimens.
- Keep moth pots on every window sill.
- Next time you re-carpet the guest room, choose a flecked pattern. This will disguise the detritus – leaves, twigs, moth wings etc. that drops off moth friends when they come to stay.
- Accept that you will have to feed and care for caterpillars from time to time. I was once left with some that only ate the tops of gone – to – seed lettuces. I well remember tramping through fields with a sympathetic vegetable grower in search of some.
- Be aware that you will develop a vicarious interest in all this. I never garden or go out for a walk without a moth pot in my pocket now. I have two colonies of moths. One is of the case-bearing (don't ask – you'll soon find out) Clothes Moth which starts life under a bookcase in the games room and works its way up to the ceiling. The other is of *Cosmopterix pulchrimella* on a clump of Pellitory round the back of the house where I found the first pupa in our garden, and potted the first moth in Guernsey, while Peter and Phil Sterling were down at one of the bays searching for it. I have to admit to a certain degree of satisfaction that it was a 'first', the same satisfaction that I feel in being able to find the pretty little Yellow V-moth in almost any room in the house at the moment and knowing that very few people Britain have ever seen it.

I wonder if it's worth setting up a moth spouses' mailing list. I'll ask Julia Peet, Carole Sterling, Dot Agassiz ... — PAT COSTEN, La Broderie, La Claire Mare, St Peters, Guernsey, GY7 9QA (E-mail: patcosten@cwgsy.net).

***Scythris potentillella* (Zeller) (Lep.: Scythrididae) new to Hertfordshire**

During September 2005, my son Conall and I were searching for micros on Croxley Common Moor (VC 20: Hertfordshire; O. S. grid reference TQ 0894). The silken larval galleries of the gelechiid *Teleiopsis diffinis* (Haw.) were found to be very common indeed as indeed were adults – sweeping *Rumex acetosella* typically producing a dozen or more specimens, with the highest density occurring among *Rumex* growing around mounds of rabbit droppings. Around a very few of these mounds, and restricted to perhaps a hundred square metres of this eastern part of the moor, we began unexpectedly sweeping specimens of a *Scythris* species. Each mound produced five or six specimens, along with many *Teleiopsis* and both species were seen to be resting on *Rumex* stems close to the ground. We subsequently ran actinic light traps here and both *Scythris* and *Teleiopsis* were attracted in abundance, our last sighting of *Scythris* being on 12 October with *Teleiopsis* persisting into November in small numbers.

There was considerable variation in the overall appearance of the *Scythris* specimens and they were, initially, taken by me to include more than one species. The ground colour varied from dull metallic purple/brown to dull grey/brown with various patches of light grey scaling, mostly sub-apically on the forewing costa and/or halfway along the hind margin. Twelve specimens were subsequently dissected and all proved to be *potentillella*; the identifications were kindly confirmed by Colin Plant who dissected a further two himself. Dr Paul Sokoloff also identified two specimens.

Frequent visits to the moor during 2006 produced the first *potentillella* on 10 June, but then no more until 1 July, when two were found. Both *potentillella* and *Teleiopsis diffinis* (first seen during March) have been present in very reduced numbers during 2006, compared with 2005, with the last sighting of *potentillella* being on 23 September. While both species appear to have suffered a population crash between 2005 and 2006 other species which were common during 2005 have hardly been seen at all, notably *Agonopterix subpropinquella* (Stt.).

These observations may prove interesting as *Scythris potentillella* is a new species for Hertfordshire (Colin Plant, pers. comm.), and one of rather few reliable records nationally. The observation that its numbers have been seen to fluctuate with those of *Teleiopsis diffinis* and that both are *Rumex acetosella* feeders, may also be of interest.

I should like to thank both Colin Plant and Dr Paul Sokoloff for confirming the identity of *S. potentillella*.— DAVID MURRAY, Flat 2, 52 Marlborough Rd., Watford, Hertfordshire WD18 OQB.

Pale Shining Brown *Polia bombycina* (Hufn.) (Lep.: Noctuidae) re-discovered in Oxfordshire in 2005 and 2006 – a nationally significant population of a UK Biodiversity Action Plan Priority Species

Between 19 June and 15 July 2006, a total of 88 examples of Pale Shining Brown *Polia bombycina* were caught in 6 watt actinic light traps set in arable field margins on four farms in the area between Witney, Long Hanborough and Charlbury in west Oxfordshire. These were operated as part of sampling for a research project investigating macro-moth diversity in farmland (part of WildCRU's Upper Thames Project – see below). The highest total in one night was 57 individuals (in three traps) and the peak appeared to be in the last few days of June and the first few days of July. In addition, two were caught in a Rothamsted Insect Survey light trap, operated as part of the same project near Hailey some 3 km north of Witney – one on 2 July and one on 7 July 2006. Previously, a single example was caught at MV light near Great Rollright, some 3 km north of Chipping Norton in Oxfordshire on 9 July 2005 by Andrew Turner, who trapped three at the same site together with Tony Davis on 30 June 2006. A further example was trapped at MV light in a garden in Over Norton, roughly 1km north of Chipping Norton, by Adrian Buckel on 3 July 2006.

Polia bombycina has undergone a massive decline in Britain since the mid-1970s. Its current status is Notable B (Nationally Scarce), but it now probably merits Red Data Book status (thought to occur in fifteen or fewer 10 km squares). Until the mid-1970s, it was widely and well distributed in southern and south-east England northwards to a line between the River Severn and the Wash (Waring et al., 2003: *Field guide to the moths of Great Britain and Ireland.* British Wildlife Publishing). Since 2000, the vast majority of sightings have been from Salisbury Plain, Wiltshire where it is recorded annually, but the population is thought to be small (*Butterfly Conservation Lepidoptera Conservation Bulletin* **7**:15). Very few have been seen elsewhere, with very small numbers from other sites in Wiltshire, Norfolk and Hertfordshire. The Oxfordshire population appears therefore to be the strongest currently known in Britain. Before 2005, it was last seen in the county in 1984 and was widespread if local up to at least 1979 (Waring, 2002: *Ent. Rec.* **14**: 128-129).

Before its decline, *P. bombycina* was most common on light or calcareous soils (Heath & Emmet, 1979: *The moths and butterflies of Great Britain and Ireland* Vol. 9. Harley Books). The habitat in the area where the overwhelming majority of moths were caught in 2006 is open, largely arable farmland with generally low hedges and sparse trees, on rather thin, well-drained calcareous soil on limestone. The topography is rather flat and the land is relatively elevated (c.100-120m) so the climate is probably quite cold compared to more low-lying areas such as central Oxfordshire. There are quite large blocks of mixed and broadleaved woodland, mainly to the north. The field in which 57 were trapped in one night is almost adjacent to one of these, and has tall hedges and 6m wide grassy margins. However, most fields in the area have narrow 1-2m wide margins. There is very little other semi-natural habitat.

Each farm was sampled (along with a number of other farms, some in other parts of Oxfordshire) once during fortnightly periods from May to October, and 2006 was the first year of sampling at these sites. Consequently, the data gathered so far are

too limited to draw any conclusions concerning relative abundance at the different sites, or habitat associations. The main site near Chipping Norton is the Pauline Flick Reserve run by Banbury Ornithological Society, a stretch of disused railway line managed for conservation with tall scrub and open, sheltered grassy areas. Like the farm sites, it is on well-drained calcareous soil and is at a similar elevation. There are small blocks of woodland in the area and hedges are variable in size, some forming tall shelterbelts. There is also an apparently lightly managed grassy hillside 200m to the north. The topography is different, as this is quite deeply undulating countryside. The Over Norton garden site is on the edge of this area, with a large area of parkland nearby.

It is interesting and perhaps rather surprising that such a population had apparently gone unnoticed, but the area has been very little recorded until recently and traditionally, arable farmland is not a habitat that greatly attracts the attentions of entomologists. The two areas in which the moth has been found in Oxfordshire are roughly 14 km apart. The terrain is essentially similar in the intervening area, and similar habitat extends across a large area of west Oxfordshire, adjacent parts of Gloucestershire including the Cotswolds, and just into Warwickshire, Some of these areas are undoubtedly under-recorded. It therefore seems likely that the moth occurs over a wide area, although recent experiences elsewhere suggest that if this is so, it may now be very localised within it. In Gloucestershire, there are a cluster of records northeast of Cheltenham from the early 1990s, with one further east towards Stow-on-the-Wold. The last county record is from 1996 (Gaunt, 2006: *Gloucestershire moths – a second account*. Published privately). Recent trapping in parts of Warwickshire adjacent to the Chipping Norton area has failed to produce the moth. This included two sessions at an apparently suitable site 6km away from the Great Rollright site, at the right time of year and in good conditions with multiple MV light traps (David Brown, pers. comm.). Records for Warwickshire are concentrated in the south of the county, with the last in 1995 from Bidford-on-Avon, where it had been recorded fairly regularly since 1984 (Brown, 2006: *The larger moths of Warwickshire*. Atropos Books). The terrain is somewhat different in most of south Warwickshire, being more low-lying and generally less calcareous, and therefore somewhat dissimilar to areas which the moth seems to prefer. Therefore, the evidence tentatively suggests that Great Rollright may be near its current northerly limit in this part of the south Midlands.

However, until more is known of the ecological requirements of this moth, we can only speculate on its likely distribution. The larva has not been found in the wild (Waring et al *op. cit.*), in spite of intensive searches at known sites in recent years, in particular Salisbury Plain (Tony Davis, pers. comm.) and a search in autumn 2006 at one of the Oxfordshire farms. The larvae feed on a variety of herbaceous plants in captivity, as well as woody species such as willows and Common Hawthorn. They are not recorded feeding on grasses. Larvae obtained from a female captured in Oxfordshire in 2006 accepted Dandelion, Broad-leaved Dock and Common Hawthorn, being particularly keen on the former. It seems likely that woody species are generally only eaten in the spring, when their leaves are more easily digested.

Those given only hawthorn in autumn 2006 remained healthy, but their growth was very slow. The larvae are highly negatively phototaxic and rapidly hide under tissue or soil if brought into the light. Therefore, we speculate that in addition to being nocturnal in the wild, they might only be active well after dark and perhaps only on darker nights. Whilst the overwintering stage of the genus *Polia* is normally the larva (Ronkay, Hacker & Hreblay, 2002: *Noctuidae Europaeae Vol. IV Hadeninae I.* Entomological Press, Sorø), the overwintering stage of *P. bombycina* seems unknown since all successful rearing attempts of which we are aware have been by forcing. The larvae reared by MCT at room temperature in 2006 fed up steadily and pupated to emerge in late October or November. Some kept in an unheated outhouse only reached about half grown (penultimate instar) and stopped growing. These were put outside on potted plants, but have probably not survived. It probably overwinters as a small larva.

It is hoped that the discovery of an apparently strong population of this moth will present the opportunity to learn something of its ecology. Further work will concentrate on continued monitoring, searches for larvae, more intensive light trapping with a mark-release experiment, light trapping over a wider area and further captive breeding in natural conditions with behavioural observations.

The Upper Thames Project is a collaborative research project led by the Wildlife Conservation Research Unit (WildCRU), Department of Zoology, Oxford University investigating the effects on diversity of the management of lowland farms, with an emphasis on declining species. The moth work is funded by the Esmée Fairbairn Foundation within a wider framework funded by the Tubney Trust, and is in partnership with Butterfly Conservation. We are grateful to Rothamsted Research for their support. We would like to thank Tony Davis and Mark Parsons (Butterfly Conservation), Ruth Feber and David MacDonald (WildCRU), Martin Corley, Andrew Turner, Adrian Buckel, Juliet Hopwood (Rothamsted light trap operator), David Brown (Warwickshire Moth Recorder), Roger Gaunt (Gloucestershire Moth Recorder), Norman Hall and Thames Valley Environmental Records Centre for comments and information in the preparation of this note, and the farmers for allowing us access to their land.— MARTIN C. TOWNSEND and THOMAS MERCKX, Wildlife Conservation Research Unit, Department of Zoology, University of Oxford, Tubney House, Abingdon Road, Tubney, Oxfordshire, OX13 5QL (E-mails: martin.townsend4@ntlworld.com and thomas.merckx@zoo.ox.ac.uk).

Diaperis boleti (L.) (Col.: Tenebrionidae) in Hatfield Forest, Essex

Diaperis boleti is an unusual darkling beetle that eats and tunnels into the polypore fungus *Piptoporus betulinus*, commonly seen growing on the trunks of dead and dying birch trees *Betula* spp.. Traditionally, this has been a rare beetle in the UK, but in recent years the incidence of finding has increased, especially on the eastern sideof the UK. In June of 2006, during a visit to Hatfield Forest in North Essex, the reachable *P. betulinus* on two dead birch trees were tapped with a stick above a beating tray. From the fungi on the first tree, nine adult *D. boleti* fell onto the beating tray. From the second dead birch, one bracket of polypore yielded no less than 15 adult *D. boleti*. Within the confines of Hatfield Forest there are many dead, standing

birch trees infested with polypore, but they are very patchily distributed and quite difficult to find, however the beetle must be very sensitive to the volatile odours produced by this fungi or the characteristic scent of birch wood attacked by this saprophyte.— Ross Piper, 17 Southmill Court, Southmill Road, Bishop's Stortford, Hertfordshire CM23 3DA (E-mail: ross_piper@yahoo.com).

Editorial Comment: It may be of interest that the late Charles Watson reared a large number of *Diaperis boleti* from a single *Piptoporus betulinus* bracket collected on 1 January 2002 from a dead silver birch tree at Wall Wood, a satellite woodland of Hatfield Forest. The fungus was kept in his garage and the adults emerged in the first few days of November 2002; two specimens are now in my collection.

Red Admiral *Vanessa atalanta* (L.) (Lep.: Nmyphalidae) courtship in winter

The Red Admiral butterfly is having an extraordinary time in Britain at present. Its annual abundance has increased spectacularly since the mid-1970s (Fox, R. *et al.* 2006. *The State of Butterflies in Britain and Ireland.* Pisces Publications, Newbury) and, over the same period, the number of winter sightings has risen from a negligible level to the Red Admiral being the most frequently encountered butterfly in winter (Bowles, N. and Fox, R. 2006 *British Wildlife* **17**: 280-282). The winter of 2006/07 proved no exception with Red Admiral records received from over a dozen counties on New Year's Day 2007 alone (Nick Bowles pers. comm.). The current consensus is that such sightings represent over-wintering butterflies rather than recently arrived immigrants (Burton, J. 2007 *Atropos* **29**: 3-11). Larval activity, growth and survival during the winter months have also been noted with increasing frequency in recent years (Asher, J. *et al.* 2001. *The Millennium Atlas of Butterflies in Britain and Ireland.* OUP, Oxford). It appears that the Red Admiral is (perhaps not for the first time) making the transition from being a migrant summer-breeding species in Britain to a year-round resident.

Interwoven with this shift in the status of the Red Admiral are apparent changes in the species' behaviour, at least in the autumn and winter. Male territorial behaviour, for example, has been observed recently during autumn; a season when male Red Admirals might otherwise be expected to be either migrating southwards or feeding up for overwintering (Dennis, R.L.H. *et al.* 2006 *Entomologist's Gazette* **57**: 83-89). Territorial behaviour by males suggests that some Red Admirals are breeding in Britain during the autumn. As recently as 1997, M. Tucker stated that "hardly anyone has seen a paired couple of Red Admirals in the wild in the British Isles and observations of genuine courtship behaviour between males and females are almost as scarce" (*The Red Admiral Butterfly.* Butterfly Conservation, Dedham, Essex). He could cite only one record (in 1984) of Red Admirals mating in Britain. Over the last decade however, there have been another seven reports, including a pair that I was fortunate to observe myself (Fox, R. and Sleep, T. 2005 *Atropos* **25**: 66-67).

On 14 January 2007, I observed two Red Admiral butterflies engaged in what appeared to be courtship behaviour at Stover Country Park (SX 833751), nearNewton Abbot, Devon. The two butterflies were flying very close together, one behind the other, at about 2m height around a sunny woodland edge. Their flight was

slow and did not involve any clashes between the individuals or the upward spiralling flights that characterise aggressive encounters between males. The butterflies alighted briefly on tree foliage but almost immediately resumed their leisurely flight. Although they were only in view for about a minute, and I was not able to ascertain the sexes of the butterflies involved, the observation corresponds closely with described courtship behaviour. It would be of great interest to hear from other observers who have witnessed such behaviour during the winter months.
Although extraordinary for Britain, all of these recent observations reflect the normal pattern of winter activity for the Red Admiral in southern Europe (Stefanescu, C. 2001 *Ecological Entomology* **26**: 525-536) and the formation of permanent British Red Admiral populations in response to climate change was predicted (Dennis, R.L.H. 1993. *Butterflies and Climate Change*. Manchester University Press, Manchester). Nevertheless, courtship in mid-January represents a remarkable development in the dramatic recent history of the Red Admiral in Britain.— RICHARD FOX, Butterfly Conservation, Manor Yard, East Lulworth, Dorset BH20 5QP (E-mail: rfox@butterfly-conservation.org).

Atlantopsocus adustus (Hagen) (Psoc.: Psocidae) new to Britain from East Cornwall

While surveying the coastal land east of the Fowey River in East Cornwall in August 2006 some large barkflies were retained for checking. They appeared to be an *Amphigerontia* species when netted, but proved to be an *Atlantopsocus* when taken through the new identification key (New, 2006. *Handbk Ident. Br. Insects* **1** (7)). Only *A. personatus* is covered by New (2006) although it has never been found in Britain – he comments that reports of its incidence in southern England have yet to be confirmed. It is best known in Ireland where it appears to be widespread. The wings of *A. personatus* are however un-spotted apart from the pterostigma, and the two female specimens which had been retained had noticeable dark markings on the wings – similar to an *Amphigerontia*. The specimens were accordingly sent to Bob Saville for his opinion, but he was equally puzzled and sent them on to Charles Lienhard who has now determined them as *Atlantopsocus adustus* and new to the British List. *A. adustus* is only otherwise known from Madeira and the Canary Islands where it has been found on various trees and shrubs. It can be identified using Lienhard (1998 Psocoptères Euro-Méditerranéens. *Faune de France* **83**).

The specimens had been knocked from the lower canopy of Cornish elm *Ulmus minor* and alder *Alnus glutinosa* growing along a streamside Cornish hedge in a small coastal valley near Palace Cove in Lantivet Bay, Lanteglos (SX161512), 26.viii.2006, together with *Elipsocus hyalinus* (Stephens), *E. pusillus* Lienhard and *Valenzuela flavidus* (Stephens).

Thanks to Bob Saville and Charles Lienhard for helping with the identification of the specimens and to Spalding Associates for contracting the author to carry out the survey. The land is owned by the National Trust. — KEITH N. A. ALEXANDER, 59 Sweetbrier Lane, Heavitree, Exeter EX1 3AQ (Email: keith.alexander@waitrose.com).

NINETA PALLIDA (SCHNEIDER, 1846) (NEU.: CHRYSOPIDAE), A LACEWING NEW TO THE BRITISH ISLES

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Abstract

The discovery of *Nineta pallida* (Schneider, 1846) (Neuroptera: Chrysopidae) in Britain is reported and discussed. A revised key to the identification of adult *Nineta* species is presented along with drawings of the male terminalia.

Introduction

On the night of 23 September 2006, MCH organised a moth recording evening at Wendover Woods, in the Buckinghamshire Chilterns, at O. S. grid reference SP 88980886, for UK *National Moth Night*. Amongst the non-lepidopteran insects seen was a large green lacewing which MCH recognised as belonging to the genus *Nineta*. However, upon closer inspection it became apparent that it did not match any of the three known British *Nineta* species described in Plant (1997). It came nearest to *Nineta inpunctata* (Reuter 1894), which has only recently been found in Britain and remains known here from a single specimen (Plant, 1996). However, the long veins of the wing are green and the dorso-lateral aspect of the thorax bears-reddish brown stripes; the Wendover specimen was clearly not *inpunctata*. The specimen was passed to CWP who recognised it as *Nineta pallida*, an apparently very localised European species associated with spruce *Picea* spp. and not previously found in Britain. Since this species was unexpected in Britain, CWP sent the specimen to Dr Herbert Hölzel in Austria, who confirmed the identification.

Details of the record

Wendover Woods is a large (325 hectare) area of mixed woodland, managed by the Forestry Commission, rising to approximately 260 metres above sea level in the south of England. Norway Spruce *Picea abies* covers about 13% of the woodland area, some of it managed for the production of Christmas trees; in fact the area of Christmas trees nearest the point of capture for *N. pallida* was harvested in autumn 2006 and is being restored to grassland (Jo Mason, Forestry Commission. Pers. comm.). The capture site was in a thin belt of young woodland containing a mix of Oak *Quercus robur*, Beech *Fagus sylvatica*, Birch *Betula* sp., Larch *Larix europaea* and Norway Spruce. This area of the woodland is near to the main car park and café of this popular site, with hundreds of visitors every weekend. The insect is a female and was found on the trunk of a Larch tree next to, but not actually on, a wine-rope that had been put up to attract Lepidoptera and other insects. A mercury-vapour light was running in a clearing a few metres away.

According to local weather stations in Buckinghamshire, the weather on 23 September 2006 was generally mild (minimum 12°C.) with low winds from the south-east, but the sample location was quite exposed, and felt cool and breezy.

Distribution in Europe

Aspöck *et al.* (1980) gave a distribution map for *Nineta pallida* in Europe, and at that time it was confined to the central European region in Austria, Germany, Switzerland, Czech Republic, Hungary, Poland, Romania and Slovenia with a single station in the extreme south-east of France. The Fauna Europaea website at *www.faunaeur.org*, managed by Aspöck and Müllan lists the insect in these countries and adds Italy, Spain and the Ukraine. In addition to this there are recently published records for Belgium (Bozsik *et al.*, 2002), Denmark (Popov, 2002) and Turkey (Canbulat and Kiyak, 2002). In France, Canard et al. (2006), indicate that the insect is now present in Vosges (Lorraine), Doubs and Jura (Franche-Comté) and Ain (Rhône-Alpes) in the east and has recently spread south-westwards, to the Lozère (Languedoc) and the Ariège, Haute-Garonne, Gers and Hautes-Pyrénées Départements in the Midi-Pyrénées Region. Thus, the lacewing has clearly spread in several directions from its central European origins. With this in mind, its presence in Britain was perhaps predictable and our initial surprise that this first British record should occur so far inland, over 100 km from the coast, is diminished by knowledge of the leap-frogging that has gone on between French Départements.

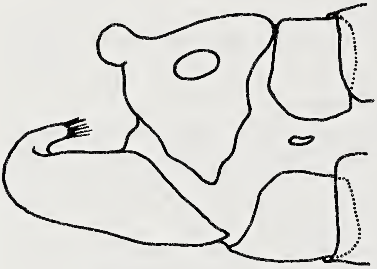
Ecology

N. pallida is associated with Spruce in forests, both as an adult and a larva (Popov, 2002) and is found principally in the tree canopy layer (Szentkirályi and Krištín, 2002). As already mentioned, Norway Spruce covers about 13% of the woodland area at Wendover and significantly there has not been any recent importation to this site of spruce trees or other forestry materials from the continent (Jo Mason, Forestry Commission, pers. comm.). Presumably the larvae prey on aphids in the canopy, such as the Green Spruce Aphid *Elatobium abietinum* (Walker). *Nineta pallida* has generally been considered an insect of high altitudes (e.g., Czechowska, 2002). Canbulat and Kiyak (2002) state that it can be found among Spruce in mountain forests, waterlogged forests and higher-altitude planted monocultures. However, some of the more recent records from the continent have been at lower altitudes, perhaps indicating that the species is adapting to new conditions. The Belgian specimen was collected by sweep-netting in the vicinity of Gembloux Agricultural University in July 1997, a lowland area containing gardens, parks and a nature reserve (Bozsik *et al.* 2002). The Turkish specimens, a male and a female, were collected from Corsican Pine *Pinus nigra* (using a "net trap") on 23 August 2001 (Canbulat and Kiyak, 2002). In Slovakia the adult flight period includes May-July (Szentkirályi and Krištín, 2002). The species overwinters as a first-instar larva, and there is one generation per year, with the adults perhaps aestivating under some circumstances (Michel Canard, pers. comm.).

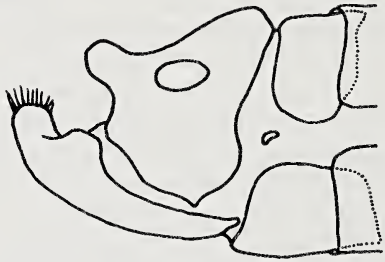
Identification

Seven species of *Nineta* are currently recognised as occurring in Europe, although there is a division of opinion concerning the status of *N. principiae*, which is regarded by some as a subspecies of *N. guadarramensis*. With four of these now known to be present in Britain, it seems sensible to present a key to all the species rather than just the four already recorded here. Plant (1997) provides a key to species within the Chrysopidae. In that work, *Nineta vittata* (Wesmael) runs out at couplet 15, on the basis of its distinctive elongated antennal scapes. The following modification to couplet 17 of the key should enable *N. pallida* and the remaining European species to be distinguished. Characters in bold are critical; non-bold characters are supporting features. Illustrations of the male terminalia are also provided (Figs. 1 – 7) for all seven species. These illustrations were most kindly supplied by Michel Canard and first published in Canard et al. (1998).

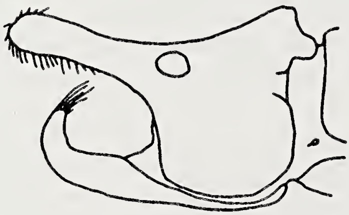
17	**Costal margin of fore wing concave** (This character may be less obvious in females, and it is recommended that a straight edge be placed along the costa to aid interpretation).	17a
-	**Costal margin of fore wing not concave**	17b
17a	**Costal cross-veins of fore wings more or less entirely pale**, rarely darkened. Cilia in the basal fifth (nearest the body) pale and relatively long and thin, at least as long as the width of the costa and sometimes longer than this width. Hairs on the front face of the front coxae pale, long and fine.	*N. flava*
-	**Costal cross-veins of fore wings more or less entirely darkened** or at least darkened at the ends. [Non-British species.]	*N. guadarramensis* and *N. principiae*
17b	**Pseudo-median and other long veins of fore wings (radial sector and pseudo-cubital) green.** Costal cross veins of fore wings green. Upper surface of thorax usually with reddish brown bands (may fade, especially in alcohol).	*N. pallida*
-	**Pseudo-median vein of fore wing black (or at least darkened compared to the cross-veins).** Upper surface of thorax green and yellow – never with reddish brown markings.	17c
17c	**Costal cross veins of fore wings darkened. In the fore wing, the radial sector and the zig-zag longitudinal vein in the space between the radial sector and the pseudo-median vein converge towards the wing tip.** Cilia in the basal fifth of the costa of the fore wing black, short and stout, scarcely longer than the width of the costa. Hairs on the front face of the front coxae short, stout and black. [If the specimen does not quite fit, check that it is not an unspotted form of *Chrysopa pallens* (= *septempunctata*)].	*N. inpunctata*
-	**Costal cross veins of fore wings green – not darkened. In the fore wing, the radial sector and the zig-zag longitudinal vein in the space between the radial sector and the pseudo-median vein do not converge, but run more or less parallel to each other all the way to the wing tip.** [Non-British species.]	*N. carinthiaca*



1. *N. carinthiaca* (Hölzel)



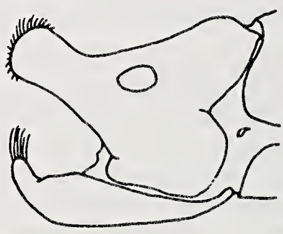
2. *N. flava* (Scopoli)



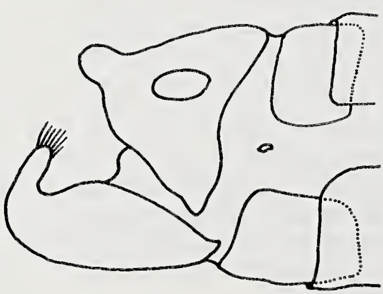
3. *N. guadarramensis* (Pictet)

4. *N. inpunctata* (Reuter)

5. *N. pallida* (Schneider)



6. *N. principiae* Monserrat



7. *N. vittata* (Wesmael)

Discussion

The spread of insects traditionally regarded as being more or less sedentary is a phenomenon that is becoming increasingly common. Links have inevitably been made with recent changes in overall planetary climate and whether these changes prove to be long or short term it is likely that they will stimulate further range alterations amongst European insects. The discovery of *Nineta pallida* in Britain, hot on the heels of its congener *N. inpunctata* (Plant, 1996), serves as a salutary reminder that any specimen that "does not quite fit the key" should be subjected to a critical examination by a person with experience of the group in a wider geographical context.

Plate D. *Nineta pallida* (Schneider), Wendover Wood, Buckinghamshire, 23.ix.2006. Leg. M.C. Harvey. (Photograph by C. W. Plant)

Facing page:

Figs. 1 – 7. Male terminalia of European *Nineta* species. Abdomens are aligned with the insects' heads to the right. Drawings copyright © Michel Canard (Toulouse).

Acknowledgements

We are most grateful to Dr Herbert Hölzel (Brückl, Austria) for confirming CWP's initial identification of the Wendover specimen and for providing us with information on its distribution. CWP also wishes to record particular gratitude to Dr Michel Canard (Toulouse, France) for permission to reproduce the drawings of male genitalia of European species that originally appeared in Canard et al (1998) and for kindly providing us with the original drawings for reproduction. MCH records thanks to the Forestry Commission for permission to record insects at Wendover Woods.

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An invasion of the Harlequin Ladydird (*Harmonia axyridis* Pallas) (Col. Coccinellidae) in the South Wight

A swarm of Harlequin Ladybirds *Harmonia axyridis* descended on the South Wight in the thousands in 2006. It is probably the first time such a mass has been observed in this country. Walkers along the Island's south coast and on Compton Chine, bird watchers on Ventnor Down and householders in the Ventnor and Mottistone areas reported seeing thousands of these insects. I had one in the kitchen here on 6 November. In France, Belgium and Holland, their numbers are soaring annually. Sighting in Britain have been mainly restricted to the south-east, extending from Hampshire to Norfolk.— SAM KNILL-JONES, 1 Moorside, Moons Hill, Totland, Isle of Wight P039 OHU.

A naturalised population of a Mediterranean earwig, *Forficula pubescens* Gené (Derm.: Forficulidae) in West Sussex

On 13 September 2006 I visited a nursery that specialises in exotic plants to search for exotic insects. The nursery, near Ashington, West Sussex, holds stocks of trees and shrubs imported from France, Italy, Spain and elsewhere. By beating a tubbed *Photonia fraseri*, imported from the Netherlands, I soon found a small pale adult male earwig that I immediately recognised as *Forficula pubescens* Gené. Within a few minutes, a second example was obtained by beating a tubbed pine tree and two females and a male were obtained by beating hogweed in an overgrown patch of vegetation on the edge of the site. Clearly, the earwig was well established and had spread to a variety of plant species. I also found a large macrolabic specimen of *Forficula auricularia* (L.) by beating *Pinus pinea* that had been imported from France some months previously.

Forficula pubescens occurs around the western Mediterranean (Caussanel and Albouy. 1990. Dermapteres (Perce-oreilles*) Faune de France* **75** 1990; Herrera, 1999. *Catalogue of the Dermaptera of Spain.* Newbook Ediciones). I was able to confirm my field identification using (Harz and Kaltenbach, 1976. *Die Orthopteren Europas* III: The Orthoptera of Europe III. The Hague: Junk) and by comparison with specimens I collected at Salou, Tarragona, Spain in 1987. In Spain, I collected this species by using vegetable oil to flush specimens from the deep indentations of gnarled tree trunks. My guess is that the Sussex population originated from one or more examples imported on trees from Spain: there were several mature Spanish olive trees and palms of various kinds in tubs close to where the earwigs were found. Some of the olive trees had been outdoors at the nursery for three years.

Using currently available keys to British Dermaptera, *Forficula pubescens* could be misidentified as *Forficula lesnei* Finot. Both species are of similar size and colour and early finds of *F. lesnei* in Britain (Burr, 1897. *British Orthoptera (Earwigs, Grasshoppers and Crickets).* Huddersfield: The Economic and Educational Museum) were erroneously attributed to *F.pubescens*, but were later corrected to *F.lesnei* (Lucas, 1920. *A Monograph of the British Orthoptera.* London: Ray Society; Burr, 1936. Britis*h Grasshoppers and their allies: A stimulus to their study*. London: Philip Allan). Otherwise there do not appear to be any published records of *F. pubescens* from Britain, so this species may now be added to the British list as a naturalised alien. Adult male *Forficula pubescens* are easily identified by the distinctive shape of the cerci (Plate E). Compared with *F. lesnei*, the basal parts of the cerci are longer so that the paired basal parts together appear as a rectangle. In *F. lesnei*, each basal part is shorter, about twice as long as broad, so that together the basal parts form a roughly square shape. Also the dentition on the internal aspect of the basal parts differs: in *F. pubescens* there is a large tooth at the distal angle of each basal part plus other smaller teeth that are unevenly spaced along the internal aspect of the basal circus, whereas in *F. lesnei* the teeth are more evenly spaced. Females are less readily identified although there are differences in the shape of the elytra: in *F. lesnei* they are roughly square-ended while in *F. pubescens* the hind margin is obtusely angled (Caussanel and Albouy, *op. cit.*). Nevertheless, these differences are

subtle and it would be unwise to base records on females alone. Also, in Italy and the eastern Mediterranean there are additional species that could be confused with *F. pubescens*, although reference to the shape of the male cerci would allow identification (Harz and Kaltenbach, 1976. *op. cit.*). The current fashion for exotic and sculptural plants from southern Europe suggests that it is quite likely that *F. pubescens* has been introduced to parks and gardens across Britain. It is possible that it could become established, temporarily at least, in warmer coastal or urban areas.

I thank Bruce Jordan for allowing and encouraging entomological investigation of the nursery.— John Paul, Downsflint, High Street, Upper Beeding, West Sussex BN44 3WN.

Plate E. *Forficula pubescens* Géné. Ashington, West Sussex, 13.ix.2006.

RHAPHIUM NASUTUM (DIPTERA: DOLICHOPODIDAE), *PHERBELLIA ROZKOSNYI* & *TETANOCERA MONTANA* (DIP.: SCIOMYZIDAE), INSECTS NEW TO IRELAND AND *GEOMYZA BALACHOWSKI* (DIP.: OPOMYZIDAE), PRESENCE IN IRELAND CONFIRMED

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Abstract

The species *Pherbellia rozkosnyi, Rhaphium nasutum* and *Tetanocera montana* are added to the Irish list of Diptera and the presence of *Geomyza balachowski* in Ireland is confirmed. Notes are provided on the identification of these species and their known biology. Points of potential biogeographical interest are discussed.

Introduction

The Diptera known from Ireland were listed by Chandler (1998). There do not appear to have been any additions to the Irish opomyzid list since then (but see below) and the only additional sciomyzid species for which Irish records have been published is *Colobaea distincta* (Ryder *et al.*, 2003). There have been several additions to the Irish dolichopodid list since Chandler (1998) appeared, but *Rhaphium nasutum* (Fallén) is not among them. The present text provides first Irish records of one opomyzid species and two sciomyzid species, all of them collected during course of survey work conducted on a farm in Co. Cork. The general character of that farm, and its recent land-use history, are described by Good (2001).

Geomyza balachowskyi Mesnil, 1934

Co. Cork: W6658 (NT2), Glinny, Riverstick; various dates between 9 August and 8 October 2005, males; Malaise traps; hay meadows and humid, disused, seasonally-flooded, unimproved *Deschampsia/Molinia* grassland; coll. and det. M.C.D. Speight; specimens deposited in collections of National Museum of Ireland.

The confused nomenclatural history of this small fly is detailed by Drake (1993). Chandler (1998) cites the closely similar *G. hackmani* as occurring in Ireland, but not *G. balachowskyi.* Enquiries of Robert Nash, who maintains the Ulster Museum database listing Irish Diptera, reveal that there have apparently not been any subsequent published records of *G. balachowskyi* from Ireland (R. Nash, pers.comm.). However, the Fauna Europaea (FAEU) website (http://www.faunaeur.org) gives this species as "present" in Ireland. Unfortunately, FAEU gives no information on the source of its entries, so there is no way of knowing why it records *G. balachowskyi* from Ireland. There was no requirement of contributors to FAEU to cite species only from parts of Europe for which there were published records and it is thus possible that the FAEU citation of *G. balachowskyi* for Ireland is based on unpublished data. Whether this is so, or whether the citation is simply an error, cannot be determined. Whichever explanation is correct there is

evidently need to validate the FAEU entry by reference to an actual occurrence of this species in Ireland, backed up by reference material. The present note hopefully serves that purpose. The male of *G. balachowskyi* can be determined using the key and figures of the male terminalia provided by Drake (1993). The female cannot reliably be separated from the female of *G. hackmani. G. balachowskyi* is known from most parts of Europe and is known in Britain from the Scottish Highlands to the south coast of England. There would seem no reason why it should not prove to be widely distributed in Ireland. Its larvae are believed to feed in stems of *Arrhenatherum, Holcus* and *Lolium*. According to Drake (1993) the flight period of this species is uncertain, because it has been so confused with *G. hackmani*. The Co. Cork specimens were all collected between August and October. *G. hackmani* was collected by the Malaise traps on the farm during the same period, and also earlier in the year (June/July).

Pherbellia rozkosnyi Verbeke, 1967
Co. Cork: W6658 (NT2), Glinny, Riverstick; 1-20 September 2005, male; Malaise trap at edge of ditched stream, *Alnus-Salix* scrub/seasonally-flooded, unimproved, oligotrophic *Molinia/Deschampsia* grassland, coll. and det. M.C.D. Speight.

Pherbellia rozkosnyi is a poorly-known species only reliably distinguished from the more-frequently encountered *P. scutellaris* by means of features of the male terminalia. Rozkošný (1991) clearly depicts the relevant differences, if in a rather diagrammatic form. The females of these two species still cannot be distinguished with confidence.

P. rozkosnyi is known from Fennoscandia south to the Alps and from Britain eastwards through central Europe to Switzerland. Attention was first drawn to the presence of *P. rozkosnyi* in Britain by Perry (1990), who found it in 'damp, shaded woodland' in south west England (North Devon) and there are subsequent records from east and north east England (Suffolk, Durham) given by Cole (1997). The Suffolk record was from *Betula/Quercus* woodland on sandy soil and the Durham record from 'a damp limestone gorge' (Cole, 1997). The Malaise trap that collected the solitary Irish male specimen reported here was one of a series installed in various habitats on a farm. This particular trap was beside a ditch running along the edge of a seasonally-flooded, disused, unimproved, oligotrophic *Deschampsia/Molinia* grassland invaded by thickets of scrub *Salix* and *Alnus*, with wet, mature *Alnus* woodland on the other side of the ditch. Malaise trapping in the *Alnus* wood did not produce *P. rozkosnyi* but did produce a few specimens of the closely similar *P. scutellaris*. European data demonstrate that adults of *P. rozkosnyi* occur from June to September, with peaks towards the beginning and end of this period. The developmental stages of this species are unknown.

Small sciomyzids, like species of *Pherbellia*, are not much susceptible to collection by Malaise trap and neither are they easy to collect using a sweep net, especially from tall, tussocky vegetation like the grassland that produced the *P. rozkosnyi* specimen reported on here. Work on sciomyzids in Ireland has not been sufficiently systematic or widespread to provide a basis for deciding whether *P.*

rozkosnyi is probably restricted to either the south west of the island or to some particular habitat type in Ireland. All that can be said is that there are no other *Pherbellia* species only known from one record in Ireland and that *P. scutellaris*, to which *P. rozkosnyi* is closely similar, is not infrequently recorded. Now that both *P. rozkosnyi* and *P. scutellaris* are known to occur in Ireland any earlier records of *P. scutellaris* based only on females must be regarded as unreliable and care will be needed to check the terminalia of any males collected in future, if correct determination is to be ensured. Similarly, unless their terminalia have been checked, the identity of males in museum collections named as *P. scutellaris* cannot be relied upon.

Rhaphium nasutum (Fallén, 1823)
Co.Cork: W6658 (NT2), Glinny, Riverstick; 20 July-9 August, 2005, male, Malaise trap in broad field margin of hay meadow, beside ditched seasonal stream backed by mature hedge of *Rubus fruticosus/Prunus spinosa/Salix/Sambucus*; coll. and det. M.C.D. Speight; specimen deposited in collections of National Museum of Ireland.

Rhaphium nasutum is a reasonably distinctive species - at least in the male – whose features are somewhat misleadingly represented in Fonseca (1978). The genital lamellae are not only bifurcate, with the two elements of each fork of unequal length, as mentioned by Fonseca (1978), but also very long and ribbon-like. In a fresh specimen these elements are quite straight and directed anteriorly, along the ventral surface of the abdomen. The most distinctive feature of the male fore tarsi is a blunt spike-like projection present apically, on the ventral surface of the second tarsomere. This projection, which is entirely missing in the rather similar species *R. commune* Mg., remains unmentioned by Fonseca (1978), but is reasonably clearly figured by Parent (1938) and Negrobov (1979).

R. nasutum is a Holarctic species, in Europe known mostly from central and northern parts of the continent. In the Atlantic zone it appears to be generally infrequent and is included on at least one "Red List". According to Pollet (2000) it is a species found along the margins of large bodies of standing water, or big rivers, but the existing literature is not very helpful in defining either macrohabitats or microhabitats with which *R. nasutum* is associated. Its developmental stages remain unknown. The closest water to the Malaise trap on which the present record is based is an almost-permanent (i.e. flow ceases in dry summers) small stream flowing along the bottom of a ditch that is approximately 1.5 metres deep, overshadowed by an adjacent hedge and carrying little vegetation on its sides or bottom. There are no large water bodies, standing or running, within many kilometres of the trap. The hayfield in which this Malaise trap was installed is humid, with sparse *Juncus* growing among the tall grasses, in particular along the field margin, but at no time of the year does the field carry areas of standing water. The ditch is clearly an active element of the farm landscape, in the immediate vicinity of the trap, demonstrably supporting the development of subaquatic species - emergence trapping carried out along its bottom produced the sciomyzid *Renocera pallida*, whose larvae predate pea mussels (populations of which are present just beneath the surface in the ditch-bottom) and the syrphids *Chrysogaster solstitialis, Ripponensia splendens* and

Sphegina elegans (Speight, in litt.). None of these species could be expected to develop in the hayfield itself (and none of them were found in emergence traps installed on the hayfield margin). Through wave-action the margins of large water bodies can exhibit areas bare of vegetation and the margins of large rivers can likewise develop bare areas due to fluvial erosion processes. Perhaps *R. nasutum* has some association with such bare areas? The ditch on this farm would seem to have little in common with a large water body other than bare ground alongside water. Clearly better habitat information is needed for *R. nasutum*. But how much is known of the dolichopodid fauna of farmed land in general? While the limited resources available for inventorising insect faunas in Europe are understandably mostly focused on gaining a better understanding of nationally and internationally-important sites, for many taxonomic groups there remains little published information on the species than can be found in farmland or the circumstances under which those species survive. It remains possible for such species to persist in farmland undetected, simply due to a lack of work in the farmed landscape – see, for instance Helden and Sheridan (2006). If *Rhaphium nasutum* were to occur in association with unvegetated field ditches in many parts of Ireland this could certainly have gone undetected and unpredicted, given the limited attention that dolichopodids have received within farmland. Under these circumstances the status of *R. nasutum* in Ireland can only remain a matter for conjecture, until and unless farmland faunas become better known.

Tetanocera montana Day, 1881

Co. Cork: W6658 (NT2), Glinny, Riverstick; 9-29 August, 2005, 2 males and 1 female; males from Malaise trap in seasonally-flooded, mesotrophic freshwater marsh with patches of bare ground and clumps of *Carex riparius*; female from Malaise trap in seasonally-flooded, unimproved, disused, *Deschampsia/Molinia* grassland, coll. and det. M.C.D. Speight; specimens deposited in collections of National Museum of Ireland.

Tetanocera montana was first described from North America and later recorded from Europe. It is one of only three European *Tetanocera* species in which there is normally a distinct bristle on the postero-dorsal surface of the hind femur, in addition to the bristles on its antero-dorsal surface. Of these three species, the northern European *T. ornatifrons* (not known south of Finland) has black marks on the frons and beside the antennae, these marks being absent in the other two. These other two species, *T. arrogans* and *T. montana*, are more difficult to distinguish. However, *T. montana* has a dark brown mark, medially, on the occiput (see Fig. 1b), that is absent in *T. arrogans* and the anterior of the two fronto-orbital bristles is also positioned differently in these two species (see Fig. 1), being closer to the anterior margin of the frons in *T. montana* than in *T. arrogans*. Essentially, in *T. arrogans* (Fig. 1a) the anterior fronto-orbital is closer to the corresponding hind ocellus than to the anterior margin of the frons, whereas in *T. montana* (Fig. 1b) this bristle is about equidistant from hind ocellus and anterior margin of the frons (although there is some variation in the position of these bristles in *T. montana*). Further, the surstyli of the male

terminalia are very different in appearance in these two species, when examined in external view. In *T. arrogans* the surstyli are heavily sclerotised, and each surstylus ends in two blunt, dark brown/black points, whereas in *T. montana* the surstyli are distally thin and transparent, each surstylus ending as an evenly rounded lobe. These differences are well shown in the figures provided by Rozkošný and Jeremies (1977) and Vala (1989), although the figure of *T. arrogans* surstyli is more accurate in the former and that of *T. montana* is more accurate in the latter. By contrast, the figures in Knutson and Lyneborg (1965) show the surstyli of these species in lateral view, from which direction they appear almost identical. Features of the male terminalia remain the most reliable means of identifying not only *T.montana*, but also other *Tetanocera* species.

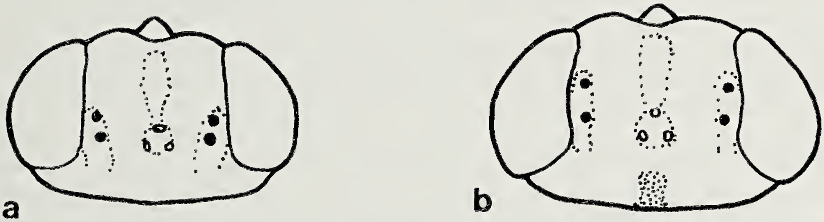

Figure 1. Head viewed from above, a = *Tetanocera arrogans*; b = *T. montana*.
Solid black circles denote insertion points of fronto-orbital bristles; solid patch of stippling indicates position of dark brown mark on occiput of *T. montana*. The antennae and insertion points of other bristles are omitted from the figures.

Existing keys to the separation of European *Tetanocera* rely heavily on the presence of the postero-dorsal bristle on the hind femora as a mechanism for separation of *T. montana* (and *T. arrogans*) from other species. However, this bristle is not infrequently absent from one or the other hind femur, making it necessary to check both femora. Further, it is apparent that this bristle may be lacking (or, at least, so small as to be indistinguishable from the general hair covering of the femur) from both hind femora in some specimens. A female specimen of *T. montana* in which the postero-dorsal bristle is lacking from both hind femora would key out as the common species *T. ferruginea* in existing keys. About the only feature that might be used to distinguish such specimens of *T. montana* from *T. ferruginea* would be the dark brown mark found on the occiput of *T. montana*, which is absent from *T. ferruginea*. The reliability of records of *T. montana* based on solitary females would be open to question, in the absence of additional features for separation of this species. Males of *T. montana* can be easily distinguished from *T. ferruginea* by the very different appearance of their surstyli, which should be checked in any case of doubt. Both *T. arrogans* and *T. ferruginea* were recorded frequently in Malaise traps catches from the farm in Co. Cork, and both of them were also taken in emergence traps there (Speight, 2004). Further, both of these species were found on the farm in the same Malaise trap samples as *T. montana*, showing that all three species can occur as adults in the same place at the same time of year.

In western Europe *T. montana* is known from Lapland south to Belgium, and has not been found in Britain. It is only recorded from the Czech Republic and Hungary in central Europe. Further East it occurs in Siberia and Mongolia, and further south in Portugal, the Ukraine, Armenia and Turkey. This is a strangely patchy distribution. The species isn't particularly difficult to identify so its distribution in Europe presumably reflects other factors in operation. In general, *Tetanocera* species are easy to collect using either Malaise trap or sweep net. The freshwater marsh, with patchy, tall vegetation and small areas of bare ground, where two of the specimens from the farm were found, closely resembles the only other locality from which the author has collected this species, on the shores of the Baltic, in Finland. In both instances the ground surface remains humid and damp, if not flooded, throughout the year, including during the summer months. Equally, at times of inundation the ground surface of these sites is only shallowly flooded. If *T. montana* requires such conditions habitat availability might be expected to limit its occurrence under the climatic regime of Europe's continental zone, a situation that could only be exacerbated by the widespread drainage of wetland that has affected all EU countries latterly, during processes of agricultural improvement etc. Whether *T. montana* should be regarded as a threatened species in Ireland is moot – certainly the other *Tetanocera* species known from Ireland have all been recorded repeatedly. Further, the author has specifically sought *T. montana* in Ireland over the past 30 years, with the thought that there seemed no good reason for its apparent absence. In that context it is perhaps of note that the species has now been found in Ireland in a small area of marsh ("created overland-flow wetland" – see Speight and Good, 2005) constructed on the farm in the autumn of 2002, specifically for biodiversity maintenance purposes, rather than in some long-established wetland of recognised international scientific interest! A parallel Malaise trap survey of the farm, that sampled all habitats accessible to Malaise trapping, and which was conducted during 2000, produced no material of *T. montana*. But presumably *T. montana* was "lurking" somewhere in the vicinity of the farm for it to be able to colonise the wetland introduced to the farm once that wetland was available. As described elsewhere (Speight and Good, 2001; 2005), the farm is situated within a rather homogenous, farmed landscape. There are no wetlands of any significant size in its vicinity.

Neither the larva nor the puparium appear to have been described for *T. montana*, although biological information on its developmental stages (in North America) is given by Foote (1999). He found the aquatic larva in the wild, on decaying leaves and stems of a sedge floating in the standing water of a swamp. Once transferred to the laboratory these larvae predated *Gyraulus, Lymnaea, Planorbis* and *Physella* species. In continental Europe, adults of *T. montana* are known to occur from June to September.

Tetanocera montana remains an enigmatic species. The available information certainly gives no indication as to why it might turn up in a small, recently-established marsh on a farm, rather in better-known wetlands of recognised scientific interest. And is the species really absent from Britain? That seems most unlikely.

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Craniophora ligustri D.&S. (Lep.: Noctuidae): from rarity to population explosion at Dartford, Kent and melanism

Scattered, references for north-west Kent during the 19th century are listed by Chalmers-Hunt (1965. The Butterflies and Moths of Kent, *Suppl. Ent. Rec.*77: 265) to be followed by an absence of records for the 20th century, and the comment that the species is probably extinct in this region, including the well-worked Darenth Wood. However, I encountered a specimen at my garden mv light on 3.vii.1969, where numerous ash *Fraxinus excelsior* trees and saplings grew close by. The next *C. ligustri* did not arrive until 18.vii.1984, followed by others 28.vi.1986, 10.viii.1995 (2), 20.vii.1996 and 9.vii.1998. Thus after a long absence of any reference to the species it could nave been regarded as a rarity during the last thirty years of the 20th century. From 2001, it has been seen every year — 2001 (3), 2002 (1), 2003 (4) and 2005 (10). In 2006, a remarkable total of 98 was observed, with contributions of 11 on 6 July and 10 on 11 July, it thus being the commonest of the Acronictinae , far outnumbering *Cryphia algae* (Fabr.) – 75, *Acronicta rumicis* (L.) – 49, *A. psi* (L.) – 36 *C. perla* (D.&S.) – 32 which, excepting *C. algae*, have declined in numbers, as have the other resident species not mentioned. There has been some confusion regarding nomenclature relating to the aberrant forms of this moth. Melanics are usually reported as being ab. *coronula* Haw., as for example by Skinner (1984. *Moths of the British Isles*, plate 5, fig. 12), a form described by Kettlewell (1973. *The Evolution of Melanism*: 554) as a geographic (northern), now industrial melanic. However, Haworth's description includes no reference to the dark greenish-sheen usually seen on melanic *C. ligustri* in south-east England in recent years, such as in north-west Kent and Chippenham Fen, Cambridgeshire.

Tutt (1891. *British Noctuae and their Varieties*. 111: 13), lists three melanic forms of *C . ligustri* and describes each briefly, as follows:

1. ab. *coronula* Haw. (1809) fuscous (*alis fuscis*). Tutt states that he had frequently captured it at Strood, Cuxton and other places in mid-Kent and had received specimens from South Wales.
2. ab. *olivacea* Tutt (1888) suffused with dark olive green. An extreme form in which the green with which the type is suffused in the darker parts of the anterior wings extends over the whole of them. It was reported from south Yorkshire.
3. ab. *nigra* Tutt (1890) the anterior wings, head, thorax and body intense black, and no trace of green. Tutt knew it only from Doncaster and considered it rare.

The descriptions of these three melanic forms are quite different, and Tutt when considering ab. *coronula* stated that he had collected it frequently from Strood, Cuxton and. other places in Kent, yet he described ab. *olivacea* from specimens from Yorkshire. Evidently his Kent captures were different from the dark, greenish Yorkshire moths, displaying neither greenish colouring nor greenish sheen. Today, at Dartford almost all melanics of C. *ligustri* are very distinctly greenish; however, this colour and the curious sheen: of similar- tint are fugitive and are not to be observed on older cabinet specimens.Thus it appears that these 19th century melanics in north

Kent were different from those of to-day. Tutt's evidence for those early melanics not being ab. *olivacea* seem sound, while those of to-day fit accurately Tutt's description of this form.

Accepting that these three melanic forms are distinct as seems evident from Tutt's experience and action, I conclude that the melanics I have encountered at Dartford, with two exceptions, are best regarded as ab. *olivacea* , but of non-industrial type in view of their persistent very high incidence, close to 100%, during a period of general decline in industrial melanism. A majority of these specimens retain white markings on the thorax to a varying degree .

My garden mv light has attracted two extreme melanics, on 28.vi.2001 and 2.vii.2006, with intensely black forewings, head, thorax and body, and with no trace of greenish tint, identified as ab. *nigra* and is apparently rare and not previously noted for Kent. If the ab. *olivacea* which form the vast bulk of the melanics in north-west Kent are non-industrial as suggested, it is surprising that elsewhere in the county the form has not been reported, although Chalmers-Hunt (*op. cit.*) mentions the capture of an ab. *coronula* at Ham Street, but could it have been identified as ab. *olivacea*? This exemplifies the confusion over the nomenclature of the melanic forms of *C. ligustri* emanating largely from the arbitrary manner in which the textbooks have included, or excluded them, subsequent to Tutt's work in 1891.

For much of the 20th century, South (1909 & 1937. *The Moths of the British Isles*) was the most popular and an informative work; this, and Newman & Leeds (1913. *Text Book of British Butterflies and Moths*) both mention only ab. *olivacea* and ab. *nigra*. Not until Heath *et al.* (1983. *The Moths and Butterflies of Great Britain and Ireland*) list all three forms, with brief descriptions and an unidentified illustration, add ab. *coronula* again. Skinner (*op. cit.*) lists only one melanic *coronula*, and a photographic illustration labelled thus. Of considerable significance, however, is the unpublished work of Goodson and Reid for internal use at the British Museum (Natural History) and used particularly respecting the national (RCK) Collection. In it, beneath the description of ab. *olivacea*, is the sentence "Probably the same as Haworth's *coronula*". I find Tutt's experience contradicts this.

The problem commenced in the 1890s with the publication of Tutt's work, before then there were no possible synonyms. Thus, Barrett (1896. *The Lepidoptera of the British Islands*, III: 272) was aware of variation in *C. ligustri* noting that the ground colour of the forewings might be deeper olive-green, or deep olive-brown or even almost purplish-black; white markings obliterated, dark markings intensified and hindwings darker. He wrote simply that "these dark forms are some times called collectively by the name ab. *coronula*, a name which Haworth appears to have used to designate agrey variety which he looked on as a distinct species". However, this was already outdated by Tutt's naming and describing ab. *nigra* and ab. *olivacea* and the new textbooks of the 20th century ignored mention of Haworth's variety.

Subsequently two authorities have suggested that the three forms are synonymous, despite Tutt's clear evidence that they are distinct and to-day's most popular textbook features only Haworth's somewhat doubtful appellation. The practical

outcome of this is one is that not sure if the melanic *C. ligustri* of north-west Kent named as ab. *olivacea* are the same as those in Surrey which Collins (1997. *Larger Moths of Surrey*) labelled ab. *coronula*. Also, what of Chalmers-Hunt 's melanic from Ham Street identified as ab. *coronula* Was it not a deep greenish colour like the contemporary specimens from north-west Kent? The solution – if the dark greenish melanics are labelled ab. *olivacea* and the extreme black ones ab. nigra, both easily identified, any others perhaps ab. *coronula*?— B. K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

***Tomoxia bucephala* Costa (Col.: Mordellidae): A case of long persistence in the same locality**

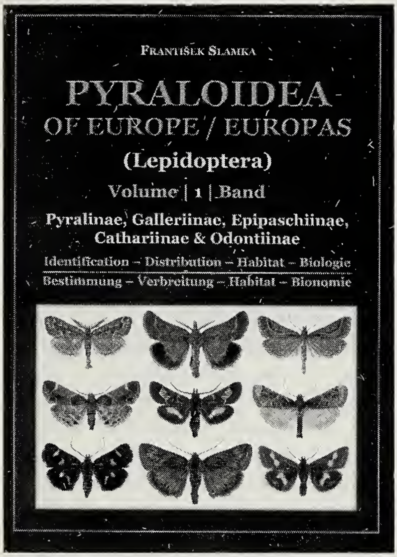
I was interested in Mr R. A. Jones' record of two examples of *Tomoxia bucephala* 'crawling on [a] large fallen beech log in Arundel Park, West Sussex, 18.vi.1976'. I would guess that this log was, in fact, the very same one on which I first met with this beetle as long ago as 1935 and on one or two later occasions. The identical log was still *in situ* many years later when it yielded, notably, the very rare *Laemophloeus monilis* Fabr.). The log was situated under one of the fine beech trees for which the park is notable and the beetles ran and flew so actively in the hot sunshine as to be hard to catch. Elsewhere, I have encountered the species only in a rather out-of-the-way part of Windsor Forest, also about beech stumps, on one occasion. — A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

SUBSCRIBER NOTICE

I have just started my PhD project on macroecology of European invertebrates. As a part of the project I am putting together a database of published papers about Syrphidae from all Europe. In particular, I am interested in published local faunal lists, inventory studies, checklists and also unpublished material (MSc, PhD theses). I would like to ask you if you could provide me with reprints of photocopies of your publications which match these criteria. I would appreciate receiving copies of older studies, published by other authors, which you would consider as rare or hard to obtain. In case of any questions do not hesitate to contact me.— PETR KEIL, Department of Ecology, Faculty of Science, Charles University in Prague, Vinicna 7, 12800 Praha 2, Czech Republic (E-mail: pkeil@seznam.cz).

BOOK REVIEWS

Pyraloidea of Europe/Europas (Lepidoptera) Volume/Band 1: Pyralinae, Gelleriinae, Epipaschiinae, Cathariinae and Odontiinae by **F. Slamka.** 144pp., including 16 colour plates of adult moths and 11 black and white plates of genitalia. 232 x 165 mm, hardbound. ISBN: 80-969052-3-6.Published by Slamka, Bratislava, December 2006. €49 (plus postage). Bilingual: English and German. Order direct from Slamka, RaËianska 61, SK-83102 Bratislava, Slovakia or by e-mail to slamkaf@nextra.sk (web site at http://home.nextra.sk/fslamka).



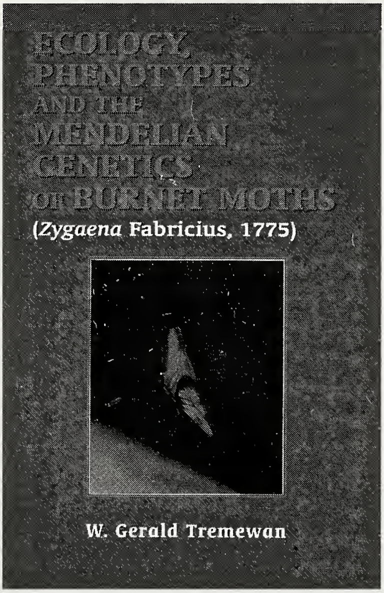
This book is from the same publishing stable as Josef Rasowski's *Tortricidae of* Europe – a fact that is immediately apparent from the near identical covers. Slamka have also produced, in recent years, *Die Zunslerartigen (Pyraloidea) Mitteleuropas* (Slamka, 1997), *The Noctuids of central Europe* (Nowacki, 1998), *Die Palpenmotten (Gelechiidae) Mitteleuropas* (Elsner et al, 1999) and *Die Oecophoridae Mitteleuropas* (Tokar et al, 2005) – four books that deserve places in the personal library of any serious British lepidopterist. The man at the helm, Dr Frantisek Slamka, has specialist knowledge the Pyraloidea; consequently, this first volume of *Pyraloidea of Europe* has been very much a labour of love.

The British Isles are included in the geographical area covered by the work, which incorporates all of Europe from Iceland in the north-west, east to the Ural Mountains, south-east to the Caucasus Mountains and south to the Straits of Gibraltar. All of the Mediterranean Islands are involved – including Cyprus, an island that is, unfortunately, omitted from most European works. European Turkey is included, but Asian Turkey is not. Species from the Azores, Canaries and Madeira are also listed. A total of 117 species is included in the work and distribution maps are included for each. Adult moths are illustrated at 1.5 times natural size by means of colour photographs and space saving has been achieved by showing only the right hand half of each species. Genitalia are illustrated by black and white photographs for both sexes of 41 'problem' species. All species are allocated a serial number, so that text, genitalia and colour plate have the same number for each taxon, making the book very easy to use. Dipping into the text in random fashion I observe that for many difficult to separate species text figures are also provided and furnished with short lines, pointing to the character that permits satisfactory identification. I have not really had the book long enough to find all the errors and there are bound to be a few in a work of this nature, but having met with Slamka and having reviewed his "track record" I expect that there will be rather few!

This is the first in a projected series of what are, essentially, identification guides covering the entire of the European Pyraloidea. This first volume contains rather few British species and some may judge it to be of limited use to English-only collectors – but then when the other

more useful volumes appear you will regret not having the complete series! If you collect in Europe it will be essential. Of course, there are other promised works on the Pyraloidea from other sources. The series *Microlepidoptera of Europe* is well worth the cost, but only one volume concerning pyraloids is yet published. Those who live long enough may yet see the pyralid volume of *Moths and Butterflies of Great Britain and Ireland* in print. My personal view is that one can never have too many books; how many times have I failed to find information in one tome then found it in another! At €49 (about £33) I recommend that you buy this volume now, before it goes out of print!

Ecology, Phenotypes and the Mendelian Genetics of Burnet Moths (*Zygaena* Fabricius, 1775) by **W. Gerald Tremewan.** 390 pp., 194 figures (163 in colour), 235 x 156mm., hardback. ISBN 0 906802 11 3. Gem Publishing Co, 2006. £79.



This is a work of enormous scholarship, detailing the results of Gerry Tremewan's genetic studies on burnet moths since he began these studies in 1977. He has managed the technically very difficult task of breeding these moths, so as to elucidate the mendelian genetics of many of the beautiful and striking variant forms that occur, including specimens with yellow instead of red markings, or with confluent rather than discrete spots, or those with extra spots. To successfully complete so many broods is almost unimaginably difficult, especially in the context of producing sufficiently large numbers of specimens in 1st and then 2nd back-crossed generations, to allow determination of the ratios of forms and therefore the dominance or other expression of the forms under investigation. No wonder that the body of work was successfully presented for a doctorate in 2002.

This is not all. The early part of the book includes an extended and authoritative account of the general biology of burnet moths, which successfully sets the scene for the genetic study. This section alone is of great interest but the meat of the book is a series of explanations of the genetics of the many variant forms, culminating with a chapter on hybridisation. The text is very full and necessarily detailed but of a standard format, so that the reader can easily get used to what is being explained. Tables and diagrams illustrate the mendelian ratios that were found and finally there are many excellent colour illustrations (often taken by the author) that amply illustrate the forms under discussion.

Overall this is a beautifully produced and presented book, that will interest anyone interested in the genetics of insects, and/or the biology of burnet moths. The drawback is the price but I suppose this is inevitable for a book with so many colour illustrations and with a limited audience. However, in the context of the authority and scope of the work reported, it is not really too expensive and any reader will find continuing pleasure in its study.

Mark Young

Continued from back cover

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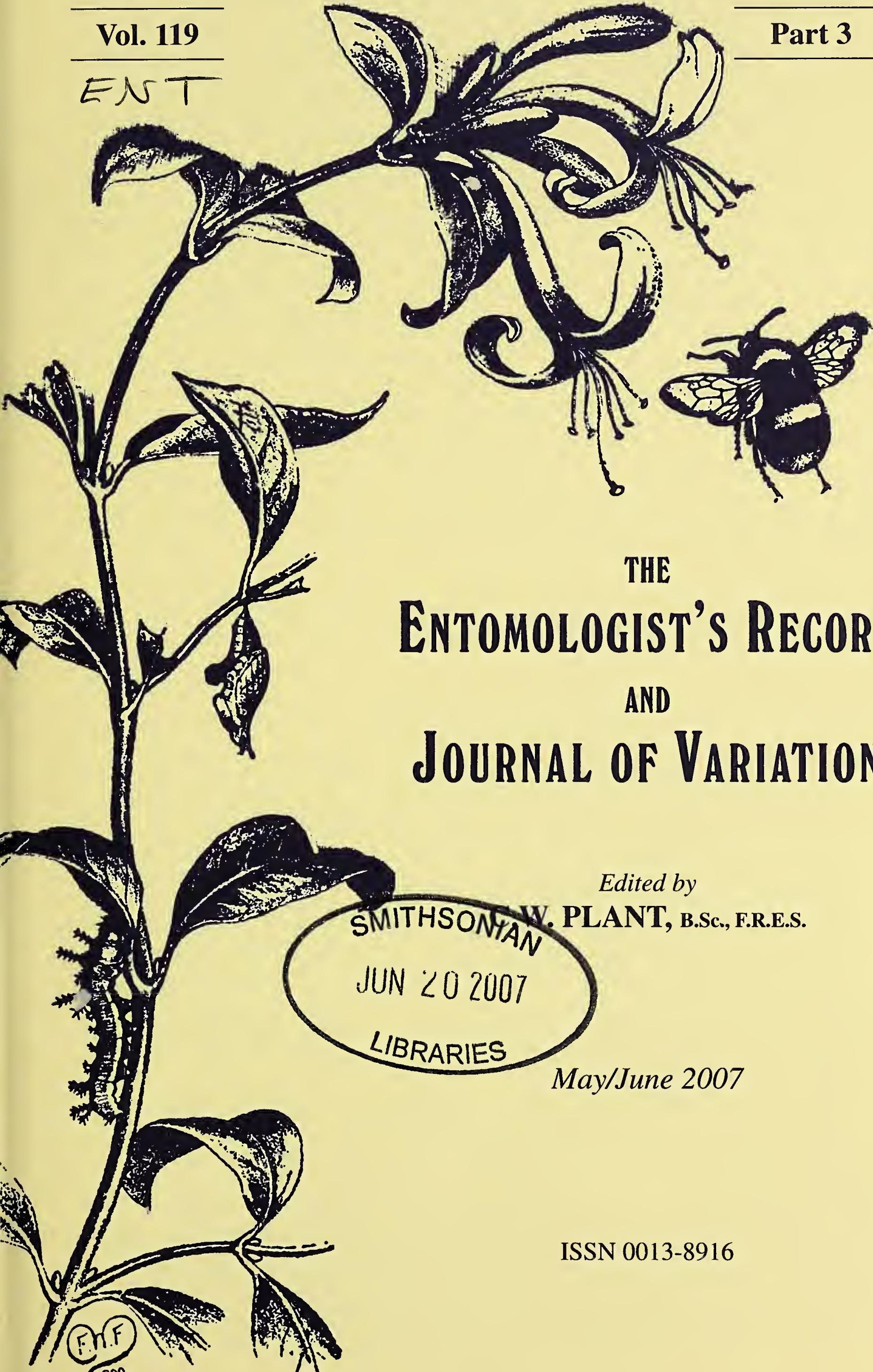

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C. W. PLANT, B.Sc., F.R.E.S.

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WATER BETONY *SHARGACUCULLIA SCROPHULARIAE* (D. & S.) (LEP.: NOCTUIDAE) NEW TO THE CHANNEL ISLANDS

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Abstract

The discovery of Water Betony *Shargacucullia scrophulariae* (D. & S.) (Lep.: Noctuidae) new to the Channel Islands (VC 113) is reported.

Introduction

On 8 June 2005, PDMC found in his garden trap a moth which initially he thought was a small specimen of Mullein *Shargacucullia verbasci* (L.) Although in poor condition, it was retained in preparation for a visit to Guernsey later that year by PHS. In anticipation of his customary advice when invited to identify specimens in this state, the specimen was dissected, whereupon it was immediately apparent that this was not a Mullein. It was a male and the shape of the valves was distinctively different from that of Mullein, and the conclusion was reached that it was a specimen of Striped Lychnis *Shargacucullia lychnitis* Rambur. This is a species which has been recorded from Guernsey on at least two previous occasions (Shayer, 1975; Higgs, pers. comm.) and was of interest given the virtual absence from the island of its usual foodplant Dark Mullein *Verbascum nigrum*. However, when the specimen and slide were seen by PHS, he was less than convinced of this identification as neither the time of year of appearance, nor the shape of the valves of this example, was consistent with that species. Then, on each of the nights of 3 June 2006 and 10 June 2006 PDMC found another similar specimen in his trap. These were again set and on this occasion PHS was able to travel to Guernsey to dissect both moths himself. On dissection the appearance of the genitalia was strongly suggestive of Water Betony *Shargacucullia scrophulariae* ([D. & S.]), based on the description and figures in Ronkay & Ronkay (1994). On returning home, PHS dissected an example of Striped Lychnis reared from a larva, and the differences between genitalia of this and the Guernsey examples were immediately obvious: undoubtedly all three of the Guernsey examples were Water Betony.

Comparison with similar species

Adults of Mullein, Striped Lychnis and Water Betony are similar, especially when worn. Although Mullein is larger and generally darker brown with a more scalloped termen in the forewing, worn examples flying in May or June can be paler with scalloping much reduced, making them look smaller and similar to Water Betony which flies at the same time. Striped Lychnis is much the latest of the three on the wing, sometimes in late June, but mainly in July, hence PHS's interest in the putative

identification of this species from early June. It appears that the only way to be sure of identity of a worn example is via dissection.

The genitalia of both sexes of all three species are figured in Ronkay & Ronkay (*op. cit.*). A simplified guide to identification of the male is given below, based on examination of our material only. The literature suggests more variation than we observed, particularly in the number and size of teeth on the ventrum of the aedeagus, so some caution may need to applied to this character. We consider there may be reliable shape and size of teeth within the carina of the aedeagus which help distinguish the species without need to evert the vesica, although with eversion, the origin of the distal part of the main tube of the vesica allows distinction to be made between Striped Lychnis and Water Betony. The valves of Striped Lychnis and Water Betony show subtle diagnostic features, but are obviously different from those of Mullein. Photographs are shown of male genitalia only of Water Betony (Figs 1, 2 & 3), Striped Lychnis (Figs 4, 5 & 6), and Mullein (Figs 7, 8 & 9). Table 1 summarises diagnostic characters of the male genitalia of the three species:

Table 1. Diagnostic features of male genitalia of *Shargacucullia* spp.

Water Betony *Shargacucullia scrophulariae*	**Striped Lychnis** *Shargacucullia lychnitis*	**Mullein** *Shargacucullia verbasci*
Valvae Valvae long. Harpe broad before apex, with apical corona well developed; width of corona about 3x minimum width of harpe	***Valvae*** Valvae very long. Harpe broad before apex, with apical corona well developed; width of corona more than 3x minimum width of harpe	***Valvae*** Valvae short. Harpe narrows to apex which may be produced into a digit; apical corona short, reduced to 4 – 6 bristles
Aedeagus Carina of strong teeth, more or less arranged in a single row nearly reaching ventrum, with smaller teeth on dorsal side of row; ventral projection a small pair of teeth; distal part of main tube of vesica arises dorsally, not dorso-laterally.	***Aedeagus*** Carina of strong teeth in an elongate patch, more or less parallel sided, nearly reaching ventrum; ventral projection a pair of large teeth; distal part of main tube of vesica arises dorso-laterally, not dorsally.	***Aedeagus*** Carina of strong teeth along dorsum and in subtriangular patch reaching just beyond half way to ventrum; ventral projection a single large tooth.

For the sake of completeness the genitalia of the females of the three species are included, reproduced from the figures in Ronkay & Ronkay (*loc. cit.*) (Fig. 10). The species can be separated by the shape of the corpus bursae and the shape and sclerotization of the ostium bursae.

Comments on records and distribution

Water Betony has long been considered to be a British insect. Tutt (1891) writing in this journal 115 years ago believed it to be *undoubtedly British* and 75 years later Chalmers-Hunt (1966) described it as *resident, perhaps native*. These authors were

referring to Victorian records from East Anglia and Kent respectively but in more recent years the only two substantiated records have both been from Swanage in Dorset. On 12 June 1949, at 3.30 a.m., A.G.B. Russell took a specimen at light (Russell 1950), the identity of which was confirmed by Boursin whom Russell described as *the foremost authority on the Cucullia group*, and on 18 May 1994, at MV light, J.H. Clarke took another specimen (Davey 1996), the identity of which was confirmed by dissection at the British Museum (Natural History).

The moth has not been recorded previously from the British Channel Islands but was noted on the French Channel Island of Chausey in June 1995 (Livorny pers. comm.). And in La Manche region of Normandy, that part of the French mainland closest to Guernsey, in contrast to Striped Lychnis which has been recorded on just two occasions (and then from the south of the region), Water Betony has been recorded from all parts and is described as *peu commun; jamais en nombre mais régulier* albeit with the caveat that Mullein, Striped Lychnis and Water Betony are difficult to distinguish from each other than by the characteristics of their larvae.

Larvae of Water Betony feed on the flowers and seeds of *Scrophularia* species, mostly *S. nodosa* Common Figwort (Ronkay & Ronkay *loc. cit.*), but this is by no means a common plant on Guernsey (Ozanne 2006). Water Figwort *S. auriculata* is frequent here in wet places but by far the commonest member of the group locally is Balm-leaved Figwort *S. scorodonia* and although many plants have been searched in recent years in the hope of finding larvae of the gelechiid *Nothris congressariella* (Bruand), no larva of any description has ever been noted. However, it remains a distinct possibility that the Water Betony is resident in Guernsey; the larvae feed up quickly and are only visible amongst the flowers of the foodplant when very small, hiding low down amongst vegetation when bigger (Fibiger pers. comm.). The larvae are, therefore, much less apparent than either those of Mullein or Striped Lychnis on *Verbascum* spp.

Of the two Guernsey examples of Striped Lychnis, the first was captured in 1971 or 1972 (no more detailed data are available) and reported in a list of 19 species which had been *submitted to, and confirmed, by the Entomological controller at the Rothamsted Centre* (Shayer *loc. cit.*). The second was taken on 28 May 1989 at MV light in St. Saviour on the west of the island (Higgs pers. comm.). In light of our findings, and the early date of the 1989 record, we consider it that this is more likely to be of Water Betony and should be critically re-examined.

Acknowledgements

We are grateful to Michael Fibiger (Sorø, Denmark) for his comments during the drafting of this paper, and for allowing us permission to reproduce the figures of the female genitalia from Ronkay & Ronkay (*loc. cit.*). We are also grateful to Dave Foot (Weymouth) for donating a specimen of Striped Lychnis.

Fig. 1. Male genitalia (valvae) of Water Betony *Shargacucullia scrophulariae* (P.D.M. Costen coll., slide number PC309)

Fig. 2. Male genitalia (aedeagus) of Water Betony *Shargacucullia scrophulariae* (P.D.M. Costen coll., slide number PC309)

Fig. 4. Male genitalia (valvae) of Striped Lychnis *Shargacucullia lychnitis* (P.H. Sterling coll., slide number PS899)

Fig. 5. Male genitalia (aedeagus) of Striped Lychnis *Shargacucullia lychnitis* (P.H. Sterling coll., slide number PS899)

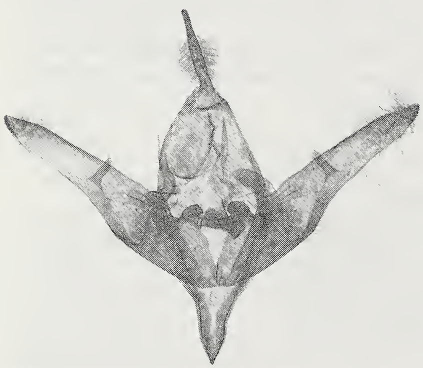

Fig. 7. Male genitalia of Mullein *Shargacucullia verbasci*: valvae (P.D.M. Costen coll., slide number PS897)

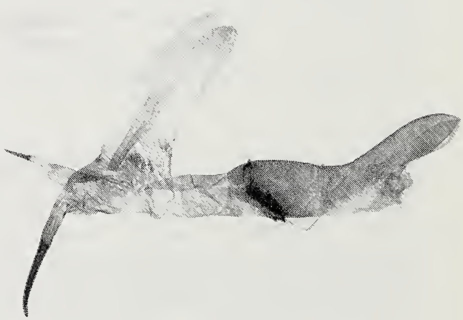

Fig. 8. Male genitalia of Mullein *Shargacucullia verbasci*: aedeagus (P.D.M. Costen coll., slide number PS897)

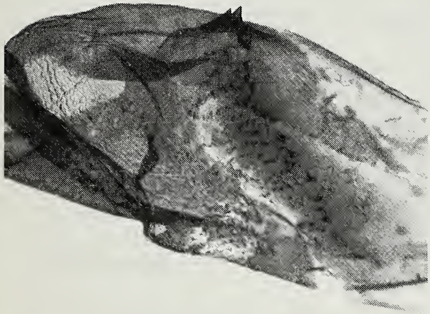

Fig. 3. Male genitalia (carina) of Water Betony *Shargacucullia scrophulariae* (P.D.M. Costen coll., slide number PC310)

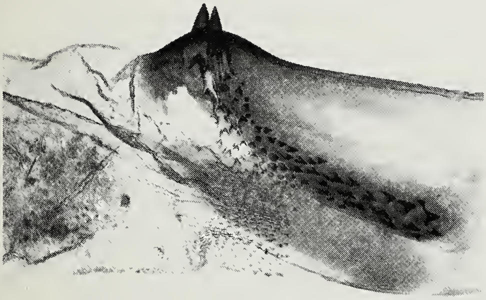

Fig. 6. Male genitalia (carina) of Striped Lychnis *Shargacucullia lychnitis* (P.H. Sterling coll., slide number PS899)

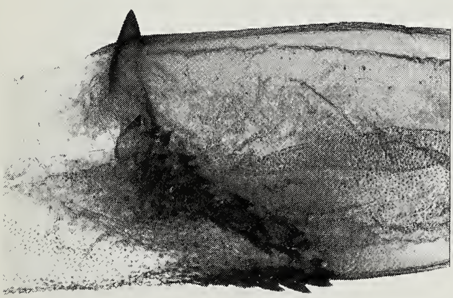

Fig. 8. Male genitalia (carina) of Mullein *Shargacucullia verbasci* (P.D.M. Costen coll., slide number PS897)

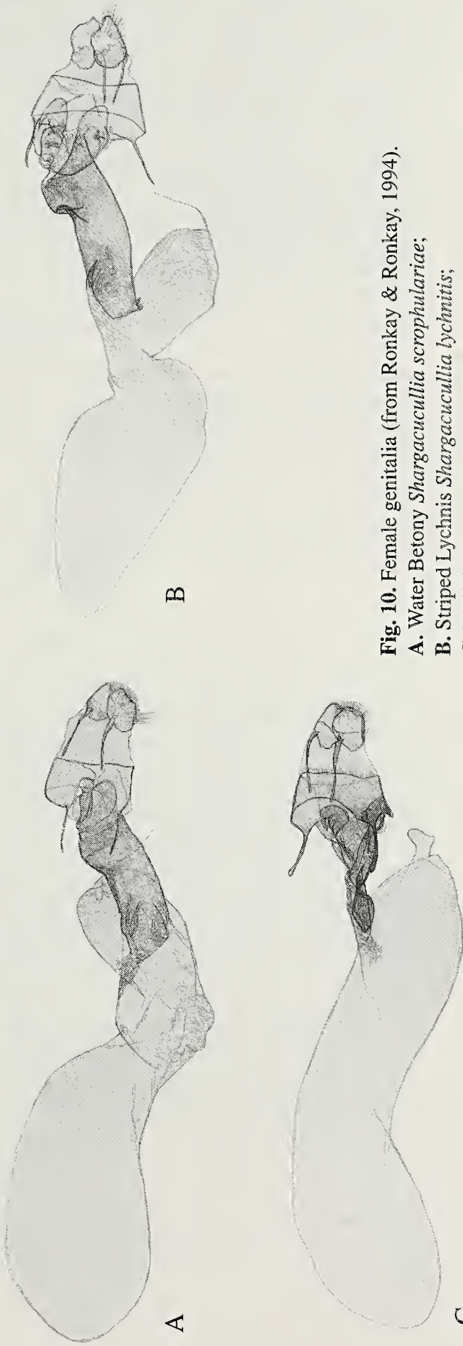

Fig. 10. Female genitalia (from Ronkay & Ronkay, 1994).
A. Water Betony *Shargacucullia scrophulariae*;
B. Striped Lychnis *Shargacucullia lychnitis*;
C. Mullein *Shargacucullia verbasci*

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It has come to my attention that a number of copies of the last issue of this journal were poorly finished. In most cases, this was because the staples were not positioned in the mid line of the paper so that when the pages were folded and cropped the left and right margins finished unequal. In extreme cases text has been cropped and in a few cases blank pages or missing pages were noted. All of these problems are the responsibility of the binders – after the printing stage – and our printers have already taken steps to ensure that this does not happen again. We shall, of course, replace all seriously defective copies at no cost to subscribers. However, we do not have a limitless supply and so we trust to the honesty of our subscribers in this matter. Please petition the Treasurer, not me, if you wish to replace your copy. Those wishing to send a stamped self-addressed envelope are welcome to do so, but this is not a requirement. – EDITOR.

THE DWARF FORM OF SILVER Y *AUTOGRAPHA GAMMA* (L.) (LEP.: NOCTUIDAE)

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Abstract

In late August 2006, dwarf individuals of Silver Y *Autographa gamma* predominated in NE Scotland, but very few were reported from more drought-stricken parts of the British Isles. This conflicts with the generally accepted 'starvation form' hypothesis. Instead, a pathological factor is suggested.

Introduction

The dwarf form of Silver Y *Autographa gamma* has long attracted attention. It has even acquired its own varietal name, *gammina* (Staudinger), and is illustrated in guides such as Skinner (1984) and Waring & Townsend (2003). Whereas the 'normal' moths are quite variable in size, with a wingspan ranging from 40-52mm, *gammina* is generally between 30-35mm and sometimes less. An exceptional example caught at Peacehaven in Sussex had a wingspan of only 24mm (Colin Pratt, pers. comm.). Also, *gammina* tends to be light silvery grey in colour, lacking the brown tones often seen in normal-sized moths.

Events of 2006

Occasional examples of *gammina* have been recorded at my home address in Banffshire in previous years, but in 2006 they were exceptionally numerous. For a period during the second half of August, dwarf individuals predominated and even the 'normal' moths with them were mainly below average size. Precise counts were difficult because most Silver Ys were seen feeding actively at heather or buddleia by day and at dusk, rather than in the light trap. With such continual movement even estimating total numbers was difficult, let alone the percentage of *gammina*. Also, there was some intergrade in size between the smaller 'normal' moths and the dwarfs, giving a few borderline individuals. Using Bretherton's (1977) definition of *gammina* as having a wingspan of 35mm or less, the following table gives rough estimates of its percentage on selected dates.

Interpreting these data is difficult. Sometimes the percentage of *gammina* varied even on the same date, with dwarfs relatively numerous by day and on warm evenings but apparently less active than normal individuals in cooler conditions. Also, the origin of the moths is unknown. Although primary immigrant Silver Ys were unusually numerous here from May onwards, there was no firm evidence that any of the late summer *gammina* were locally bred. The few caterpillars and cocoons found casually here during the summer were all of normal size. However, other known migrant species were scarce or absent in Banffshire during the main *gammina* period, giving no suggestion that a mass immigration was in progress.

I also contacted various observers to ask whether they had noticed unusual numbers of *gammina* in summer 2006. Mark Young at Oldmeldrum in neighbouring North Aberdeenshire confirmed that on some dates up to 50% of Silver Ys were dwarfs in his area. However, Brian Neath saw no dwarfs in Wester Ross, at the same latitude as Banffshire but on the west coast. Further south, Gerry Haggett replied that he had not noticed any *gammina* in Norfolk that summer, while Colin Pratt provided a figure of 0.2% *gammina* in Sussex during 2006 from a sample size of 1,384, with none at all seen in August. Such evidence strongly suggests that the *gammina* in north-east Scotland were locally bred or had not travelled far. Had they been immigrants from abroad they would surely have been at least as numerous further south.

Previous explanations for the dwarf form

Cockayne (1953) attempted to raise *gammina* to a subspecies. He reared examples from unusually dark, sometimes almost black, caterpillars he found in Kent. (Normally, wild Silver Y caterpillars are green.) Based on the larval and adult differences, he suggested that it was a genetically distinct immigrant race perhaps originating from the eastern Mediterranean, since Staudinger's type locality for *gammina* was Syria. However, he could find no differences in the genitalia, nor did he attempt to breed a further generation of dark caterpillars and dwarf moths.

Bretherton (1977) convincingly rejected Cockayne's hypothesis. He reasoned that subspecies were unlikely to evolve in such a notorious migrant as Silver Y because it lacks genetically isolated populations. Furthermore, he reared progeny from three dwarf females captured in Surrey in August 1976. The caterpillars were the usual shade of green and the adults, though on the small side, were within the normal size range. Accordingly, he argued that *gammina* is just an environmental 'starvation form' caused by desiccated larval foodplant in drought years.

This has remained the accepted view, despite Cockayne's explicit rejection of such an explanation (*loc. cit.*). The undersized black caterpillars he found at Sheerness in Kent were eating the fleshy leaves of orache *Atriplex* growing on the shore. The foodplant was abundant and very juicy, nor were there any signs of past or present larval overcrowding. He also pointed to several older references in the journals to dwarf black caterpillars of Silver Y, found on various foodplants with no mention of shortage or drought, that went on to produce *gammina* adults.

If the *gammina* seen in Banffshire during summer 2006 were indeed locally bred, this further undermines the 'starvation form' hypothesis. Although the weather was exceptionally warm and sunny throughout July, with shade temperatures in my garden exceeding 30°C on several dates, there were no obvious signs of drought. Vegetation remained green and lush. I never needed to water the garden and lawns required frequent mowing. Nor did other species that were in the larval stage at the same time as Silver Y produce dwarf forms – if anything, the resulting moths tended to be larger than average. Drought was far more severe in Norfolk and Sussex, yet the incidence of *gammina* here was very low.

As a migrant, Silver Y ranges throughout the Holartic from North Africa to beyond the Arctic circle, with breeding proven even in Iceland (Skou, 1991). Clearly it must be able to cope with a wide range of climates and habitats. It can also use a broad variety of foodplants. It seems unlikely that this species would be seriously inconvenienced by a British summer. Admittedly, it would make sense for Silver Y to have the ability to produce an emergency dwarf form when conditions were unfavourable. As a migrant, its caterpillars must often find themselves in a rapidly deteriorating environment. Their best strategy might then be to complete their metamorphosis quickly, even at the expense of producing an undersized adult – which would at least be able to migrate away from the inhospitable area. Attractive though this scenario seems, there is no firm evidence for it. Nor would it explain the very high percentage of *gammina* in north-east Scotland in 2006 despite the absence of drought, yet its much lower incidence elsewhere. Thus both the 'subspecies' and the 'starvation' explanations for *gammina* seem flawed.

Table1. Estimates of the percentage of the dwarf form *gammina* in counts of Silver Y *Autographa gamma* in Banffshire on various dates in summer 2006.

Date	Total	% *gammina*	locality & comments
30.07.2006	10	0	Ordiquhill; very fresh – the first locally bred moths?
12.08.2006	100	0	Ordiquhill; on buddleia at dusk.
17.08.2006	360	0	Ordiquhill; m.v. trap catch; many moths on small side.
18.08.2006	300	0	Ordiquhill; on heather by day; many moths smallish.
19.08.2006	100	30	Ordiquhill; on buddleia at dusk.
20.08.2006	150	50+	Ordiquhill; on buddleia at dusk.
25.08.2006	20	60	Ordiquhill; on buddleia by day.
26.08.2006	25	90+	Ordiquhill; on buddleia by day.
"	20	10	Ordiquhill; on buddleia at dusk (cool evening).
30.08.2006	30	80	Macduff (coastal); on flowers by day.
"	25	8	Ordiquhill; on buddleia at dusk (cool evening).
31.08.2006	75	50+	Ordiquhill; on buddleia at dusk (warm evening).
02.09.2006	40	0	Ordiquhill; on buddleia at dusk (cool evening).
10.09.2006	200	0	Cullen (coastal); on heather by day.
14.09.2006	11	9	Ordiquhill; m.v. trap catch.
18.09.2006	45	11	Macduff (coastal); on flowers by day.
22.09.2006	20	0	Ordiquhill; on heather by day; no further *gammina* sightings.

An alternative hypothesis

I suspect that the *gammina* form of Silver Y is neither genetic nor environmental, but pathological. Cockayne's account (*loc. cit.*) is strongly suggestive of this. He notes that the abnormally small and dark wild-found caterpillars that produced *gammina* adults were unusually delicate, so that he reared only five moths from the nine larvae he kept. Furthermore, he traced several earlier notes in the journals that made similar remarks. Thus G. T. Porritt bred only one adult from eight undersized dark caterpillars sent to him by Charles Whitehead of Maidstone, who likewise encountered problems: more than half his larvae died without spinning up, while many cocoons of those that did were imperfectly formed and produced no moths. J. C. Miller reared only three *gammina* from small dark caterpillars found at Beckenham in Kent, the others dying though well fed. Silver Y is normally a very easy species to rear.

Majerus (2002) describes the many different pathogens that can affect moths. These include viruses, bacteria, fungi and protozoa. Usually they are most in evidence from the high mortality they can cause when large numbers of caterpillars are being reared in captivity. However, even apparently healthy moths may carry sub-lethal pathogens and transmit them to the next generation through the egg or sperm.

If the *gammina* form is caused by a pathogen, why should this problem disproportionately affect Silver Y? Many other Lepidoptera produce occasional dwarfs, but not on such a scale. Cytoplasmic incompatibility, as defined by Majerus (*loc. cit.*), is one possibility. Normally this is only seen in the laboratory, when individuals from geographically distant populations are crossed. If these happen to be infected with different strains of *Wolbachia* bacteria, the crosses may fail or suffer an unusually high mortality rate. For most moths, such crosses will rarely if ever happen in the wild. But Silver Y is an abundant, long-distance migrant, hence mixing of populations infected with different strains of pathogens is a possibility. Maybe *gammina* is the result of crosses between immigrant Silver Ys of widely separate origins.

In most summers, Britain is colonised by streams of Silver Ys coming from the western Mediterranean, which then breed successfully to produce normal moths with few if any dwarfs. Perhaps in certain years some parts of Britain also receive influxes of Silver Y from the eastern Mediterranean, carrying incompatible strains of pathogens (not necessarily *Wolbachia*). For interbreeding to happen, the two streams would have to arrive almost simultaneously and to overlap geographically, with at least some females receptive to mating. The apparent association of *gammina* with hot summers could be explained by the weather patterns necessary for such mixing to occur. Alternatively, the condition may be lethal unless the weather is particularly warm and dry.

Admittedly, this is only speculation. As a hypothesis, it does at least fit the observed evidence. In late May and June 2006, Britain did indeed receive an unusually strong influx of migrant moths from the south-east, as evidenced by record numbers of Eastern Bordered Straw *Heliothis nubigera*. It is very likely that some of

our immigrant Silver Ys seen during this period had a similar origin. Perhaps it was mainly in north-east Scotland they overlapped and interbred with incompatible migrants arriving from the south-west.

There is one obvious way to take the investigation further. The unusually small and dark caterpillars that produce *gammina* should hold the key. They could be screened for pathogens at a suitable research laboratory. If any are found, each individual should be immersed in a separate container of ethanol at least 70% strong (preferably stronger) to preserve any pathogen DNA.

Acknowledgements

I am very grateful to Mark Young and Mark Shaw for their incisive comments on earlier drafts and for much stimulating discussion, though the opinions expressed in this paper remain entirely my own. I thank Brian Neath, Gerry Haggett and Colin Pratt for promptly sending me relevant information from their own areas. Mark Young kindly helped with obtaining references.

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A Red Admiral *Vanessa atalanta* L. (Lep.: Satyridae) in London on the first of March

At 13.00 hours on 1 March 2007 a Red Admiral *Vanessa atalanta* appeared in the sunny forecourt of our block of flats in Brixton, London. It landed at the foot of a tree and sunned itself for about ten minutes on the border between gravel and soil. It was a large female with considerable damage to the wings, including part of the hindwing that was still attached, flapping in the wind. This is a clear indication that it was a hibernating individual since any migrant this time of the year most likely would be in good condition. It is the first butterfly I have seen this year – not that Brixton is a famed for its butterflies. The day was sunny, but far from warm, and with a firm breeze.— TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Hummingbird Hawk-moth *Macroglossum stellatarum* (L.) (Lep.: Sphingidae) caterpillars in Banffshire

On 18 July 2005 I visited the rocky sea cliffs at Tarlair (O.S grid reference NJ 7264), near Macduff in Banffshire. Some flourishing clumps of Lady's Bedstraw *Galium verum* prompted me to search for caterpillars of Hummingbird Hawk-moth *Macroglossum stellatarum*, as immigrants had been reported elsewhere in Scotland earlier that summer. It seemed a very long shot, but within seconds I found an early fourth-instar caterpillar resting halfway up a bedstraw stem.

Further searching was unsuccessful that day, but a week later I found three more caterpillars of this species in a steep, sunny hollow elsewhere on the site. These were also halfway up the bedstraw stems, fully exposed but well camouflaged by their green and yellow livery. Two were in their fourth instar and one its final instar. The range of sizes suggested they were the progeny of more than one female. Also found with them were eight caterpillars of Small Elephant Hawk-moth *Deilephila porcellus*, bearing out the comment in Pittaway (1993. *The Hawkmoths of the Western Palearctic*. Harley Books) that both species share similar larval habitat preferences.

This seems to be the first time that Hummingbird Hawk-moth caterpillars have been found in Banffshire and indeed in North-east Scotland. If this is a consequence of global warming, then I for one am all in favour of it.— Roy Leverton, Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

***Diaperus boleti* (L.) (Col.: Tenebrionidae) not confined to birch polypore fungus**

The report of the large and distinctive beetle *Diaperus boleti* developing in birch polypore *Piptoporus betulinus* in Hatfield Forest, Essex (Piper, R. 2007. *Ent. Rec.* **119**: 74-75) is incorrect in implying that this is the sole host for the beetle. In *The invertebrates of living and decaying timber in Britain and Ireland – a provisional annotated checklist* (English Nature Research Report No. 467, 2002) I mention that this beetle has also been reported from dryad's saddle *Polyporus squamosus*, and last autumn I found it in this fungus myself, also in Hatfield Forest, 17.x.2006. This fungus causes pockets of decaying heartwood in a wide variety of trees – in this case an ancient beech. So Piper's other comment that the beetle must be very sensitive to the volatile odours produced by birch polypore or the characteristic scent of birch wood 'attacked' by this saprophyte is also incorrect, as the beetle can develop in a variety of soft annual bracket fungi fruiting from a wide variety of broad-leaved trees. The key requirements for the beetle appear to be large fleshy brackets - suitably soft for larval feeding and suitably deep to hold a brood of developing larvae - in a well-lit situation where the warm sunshine will promote good development. – Keith N. A. Alexander, 59 Sweetbrier Lane, Heavitree, Exter EX1 3AQ.

SERICOMYIA HISPANICA PERIS, A LITTLE-KNOWN EUROPEAN HOVERFLY (DIP.: SYRPHIDAE) RECORDED FOR THE FIRST TIME FROM THE FRENCH PYRENEES

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Abstract

The occurrence of *Sericomyia hispanica* Peris, 1962 (Diptera: Syrphidae) is reported for the first time in France, from the Pyrenees. A key is provided to separate this species from existing British species.

Introduction

In Europe, the hoverfly genus *Sericomyia* comprises only a handfull of species, three of which (*S. arctica* Schirmer, *S. jakutica* (Stackelberg) and *S. nigra* Portschinsky) are northern European -- subarctic, essentially – two others that are generally distributed and not infrequent and one that is southern European. The two that are generally distributed are the familiar *S. lappona* (L.) and *S. silentis* (Harris), for those working with syrphids in Britain or Ireland. The southern species is *S. hispanica* Peris, described relatively recently (Peris, 1962), but hardly referred to in literature since its description. The few existing records of *S. hispanica* are from localities scattered around mountainous parts of central (Peris, 1962) and northern (Marcos-Garcia, pers. comm.) Spain, but not the Pyrenees. Until now, no occurrences of this species have been cited for France. The present paper records *S. hispanica* from high in the Basque country on the French side of the Pyrenees, as follows:

> Pyrenées-Atlantiques: Forêt d'Iraty, 8 June 1981, female, beside stream, old *Fagus* forest at 800m, coll. and det.MCDS, in colln. MCDS.

In the field, *S. hispanica* is virtually indistinguishable from *S. silentis* and can be found in flight with that species. Under the microscope, the differences between *S. hispanica* and *S. silentis* are easily seen, including differences in the male terminalia (partially illustrated by Peris, 1962). The key to the separation of these three species provided by Peris (1962) seems to have been overlooked. Using keys like Nielsen (1997) or van Veen (2004), that do not mention *S. hispanica*, the species could easily be misidentified as *S. lappona,* due to the black tip to the abdomen that is found in both species. A modified version of the Peris (1962) key is presented below, to help draw attention to *S. hispanica*, and in the hope that it may bring to light further material of *S. hispanica* masquerading as one of the other species. The European *Sericomyia* species other than *S. hispanica* are keyed out by Nielsen (1997).

Key

1 Front femora entirely yellow (hypopygium black in male, tergite 5 entirely black in female; median black stripe on face ≤ width of face) .... ***hispanica*** Peris
- front femora partly black (especially basally and postero-laterally) and frequently predominantly black 2

2 Apex of abdomen black (hypopygium black in male, tergite 5 entirely black in female); median black stripe on face broad (≥ width of face) .... ***lappona*** (L.)
- apex of abdomen almost entirely yellow (hypopygium yellow in male, tergite 5 yellow in female); median black stripe on face narrower (≤ width of face) .... ***silentis*** (Harris)

Discusssion

Known larvae of *Sericomyia* species are of the characteristic "rat-tailed maggot" type, and live under the surface of water-logged (and often woody) plant debris. *S. hispanica* larvae presumably do likewise, in association with streams and flushes in the humid beech (*Fagus*) forest habitat in which the fly occurs. If so, there is no obvious reason why the range of *S. hispanica* should stop at the north-eastern edge of the Pyrenees and *Sericomyia* material derived from montane beech forest in other parts of the Pyrenees, or even further afield in southern Europe, might usefully be checked in case it includes this species. On that assumption I asked both Jean-Pierre Sarthou and Dave Levy, both of whom have collected syrphids in the Pyrenean beech forests, if they could check their *Sericomyia* material for *S. hispanica*. However this brought to light no further specimens and it is conceivable that the extremely "Atlantic" climate of the northern edge of the Pyrenees provides for the occurrence of *S. hispanica* at Iraty, but that further south the climate of this mountain chain is in some way inappropriate for it, over the altitudinal range that beech forests occur. By contrast, the closely similar *S. silentis* occurs from one end of the Pyrenees to the other, being found as close to the Mediterranean coast as the beech forests of the Forêt de la Massane, that is located just inland of and uphill from Banyuls-sur-Mer.

In the event that reading this note results in discovery of further material of *S. hispanica*, that extends the known range of the species, it is to be hoped that the records involved would be published. Alternatively, if their existence could be made known to the author of this note any new data they provide could be included in the StN database (see, for instance, Speight, 2006).

Acknowledgements

I am grateful to Maria-Angeles Marcos-Garcia for information about *Sericomyia hispanica* and to Santos Rojo for kindly providing me with a copy of Peris's otherwise unobtainable paper on that species. My thanks are also due to Dave Levy and Jean-Pierre Sarthou, for taking the time to check through their Pyrenean *Sericomyia* material, in a hunt for *S. hispanica* specimens.

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Coleophora involucrella (Chrétien, 1905) (Lep.: Coleophoridae) : The second record for France

A ten day visit to Sauliac-sur-Cele, in the Lot Department in south-central France at the end August and beginning of September 2006 saw several species of the handsome *vibicella* group of *Coleophora* come to mv and actinic lights positioned amongst scrub habitat on the edge of limestone cliffs which form the southern edge of the plateau de Gramat. One particular specimen had a wing span of 15mm and resembled *C. conspicuella,* but had the white subcostal streak appear to reach the costa at two-thirds then continue to the apex of the wing which threw some concern as to which species it may actually be – *conspicuella* normally stops at two-thirds.

Back home and in the depths of winter I again had another look at this and decided to dissect, which threw up more questions as the male genitalia did not appear to resemble any of the British *vibicella* group depicted in volume 3 of *Moths & Butterflies of Great Britain & Ireland* (Harley Books), my only reference to this family. I therefore sought the advice of Giorgio Baldizzone (Asti, Italy) who was quick in his reply and named the moth as *Coleophora involucrella*, apparently the second record for France; the first was found in Languedoc during 2004 by J. Nel, who found two larval cases on *Santolina chamaecyparissus* in the Hérault, at Puech de Grange, near to Nissan-lés Ensérune (Nel, J. & Varenne, T. 2004. Déscription de *Bucculatrix pyrenaica* species nova Microlepidopteres nouveaux pour la France (Lepidoptera, Bucculatricidae, Tineidae, Coleophoridae et Gelechiidae). *Revue de l'Association Roussillonnaise d'Entomologie* **13**: 114-117). Nel also observed the same species in the same condition in Spanish Cerdagne at Prats not far from the French border in 1992 suggesting this species can colonise new areas with ease if the food plant is present and therefore further records may be encountered in the near future. It is not certain though if the Sauliac specimen is from a local colony or if it is a migrant blown over the Pyrenees by the notorious Tramontane wind.

The foodplant *Santolina,* commonly known as cotton-lavender, is a popular cultivar and grows in several gardens in the commune of Sauliac, including in one adjacent to where we ran the lights. The plant can re-seed very easily; it is a typical Mediterranean species, which copes well with drought. There is also a good colony

along the road near St Chels only a few kilometres away and this contains two of its varieties *Santolina chamaecyparissus,* and the greyer *Santolina rosmarinifolia* which has rosemary-like lobe-less leaves and appears naturalized there (Marian Clarke, Sébastien Billot, Association Sauliacoise d'Animation. Pers. Comm.).

Coleophora involucrella was described from San Ildefonso, Spain and bred by Chrétien from *Santolina rosmarinifolia.* The only Portuguese record is from the Lagoa de Santo André area, about 15 km N. of Sines, on the coast S. of Lisbon found by Martin Corley in 1998, with abundant cases on *Santolina.* (Corley, M.F.V., 2004. Provisional list of the Lepidoptera of Lagoa de Santo André, Baixo Alentejo, Portugal (Insecta: Lepidoptera). *SHILAP. Revista de Lepidopterologia* **32** (126): 105-138). It appears also to be known from Morocco.

Many thanks to Giorgio Baldizzone, Martin Corley, Martin Honey, Marian Clarke, Sébastien Billot, Mike & Brenda Marney, Robin Howard and Colin Plant for much discussion and help with this article. — Jon Clifton, Kestrel Cottage, Station Road, Hindolveston, Norfolk NR20 5DE (E-mail: jon.clifton@btinternet.com).

A colony of *Deltote bankiana* (Fabr.) (Lep.: Noctuidae) persisting on a calcareous downland site in East Kent (VC 15)

During the 1993 to 1995 period, I recorded small numbers of *Deltote bankiana* (Fabr.) on several occasions at a site on the outskirts of Dover, Kent (*Ent Rec*: **105**: 288). This apparent colony occurred in atypical habitat for the species, in rough grassland towards the base of a south facing calcareous slope. This contrasted with the usual damp, marshy situations I had encountered this species previously, and with which all the other known breeding populations of this species in Britain are associated. At the time, it was felt this colony may have been established as a result of recent immigration, and was likely to be rather short-lived. Indeed, I failed to record *D. bankiana* on several casual visits to the site in the late 1990s and early 2000s.

I was therefore interested to learn that this localised population was persisting until at least 2004, when David Burrows recorded four individuals on two visits to the site in June (DB and I. D. Ferguson, pers. comm.). This was more surprising as the locality was inappropriately managed in the mid to late 1990s, when over-grazing significantly reduced sward height levels across the site and probably directly led to the demise of two other rare moth species that occurred in good numbers here prior to the grazing - *Jordanita globulariae* (Hb.) (Lep.: Zygaenidae) and *Aspitates gilvaria* (D. & S.) (Lep.: Geometridae): A cautionary tale about the need for familiarity with a site and its important faunal interests, and tailoring habitat management to suit.

I am grateful to David Burrows for informing me of his records of *D. bankiana,* and to Ian Ferguson for confirming the details of these records.— Sean Clancy, 1 Myrtle Villas. Sussex Road, New Romney, Kent TN28 8DY.

Additional notable British barkfly (Psocoptera) observations

This report summarises previously unpublished barkfly (outdoor Psocoptera) records from two sources: new observations made in 2005-6, and earlier records made by contributors to the newly launched national Psocoptera (outdoor species)/barkflies recording scheme (see BRC website - www.brc.ac.uk).

KNAA made several notable finds while surveying sites in Northern Ireland in 2006 that will not be included in this paper. They will be published in the *Irish Naturalists' Journal* in due course.

Amphipsocidae

***Kolbia quisquiliarum* Bertkau**

Keith P. Bland collected male and female specimens of this species in a malaise trap operating in dune slack grassland at Kilmory, Rum, Scotland (NG3603) between 27-31.viii.2000. Charles Lienhard (Geneva Natural History Museum) confirmed the identification of the specimens.

This species had previously been considered to be confined to southern England and its occurrence on a Scottish island shows that it has a far greater distribution range.

KNAA also found some specimens by sweep-netting herb-rich mesotrophic grassland at Coombeshead Farm, Arlington (SS6619), North Devon, 21.vii.2005.

Ectopsocidae

***Ectopsocus axillaris* (Smithers)**

This recently established introduction appears to have rapidly spread across the country and is now regularly found amongst gorse and yew foliage, on aerial dead branches on open-grown trees, and other situations. It has been found by KNAA in: East Cornwall: Blisland (SX1075), 13.vi.2005; St Dominick (SX4167), 20.vii.2006; and Lansallos (SX1751), 24.viii.2006; West Gloucestershire: Brockweir (SO5300), 6.vi.2006; Monmouthshire: Brynmawr (SO1912), 7.ix.2005, and Clydach Gorge NNR (SO2212), 5.ix.2006; Worcestershire: Birlingham (SO929442); and County Durham: Waldridge Fell (NZ251489), 5.vii.2005. The species has also been found by RES in: Falkirk: Airth (NS897877), 15.v.2005; Lancashire: Marton Mere (SD3435), 17.vii.2005; Lincolnshire: Legbourne (TF367845), 23.vii.2006; and Fife: Kinghorn (NT270868), 10.ix.2006.

Peripsocidae

***Peripsocus alboguttatus* (Dalman)**

RES collected a single female specimen from a goat willow *Salix caprea* bush in a small valley near Hartside in the Lammermuir Hills (NT474537 – vc81) on 14.viii.2006. A further search of the scattered bushes in this area of the valley bottom on 18.viii.2006 produced another female specimen, this time on grey sallow *Salix cinerea*. A short amount of time was also spent sweeping the rough grassland in the area but no specimens were found. This is the second Scottish site for the species.

***Peripsocus milleri* (Tillyard)**

We have previously reported on the first outdoor records of this species in 2005 (Saville, B, Alexander KNA, Dolling WR & Kirby P, *Ent Rec* **117**: 35-39) but two earlier specimens have only recently come to light: KNAA has one from Walcot Park in Shropshire (SO345859), 8.viii.1996, and Moseley Green, West Gloucestershire (SO632086), 18.vii.1998. These records suggest that the species was already spreading across the west of England (at least) well before its presence was first appreciated in 2004. Further records have also been forthcoming and it is clearly now well-established across much of the southern half of England. KNAA found it at Duncombe Park NNR, North Yorkshire (SE6082), 28.vi.2005 & 2.x.2006; and Claverton, North Somerset (ST776645), 22.ix.2006. The majority of these records come from tapping aerial dead branches on old open-grown trees.

***Peripsocus parvulus* Kolbe**

A female specimen was beaten from a small yew bush at the entrance to South Darley church, Derbyshire (SK267615) by RES on 31.vii.2006. Another site for the species was found the next day (two kilometres away). A total of 42 specimens were found on a row of oak trees edging a road near Stanton in Peak (SK252639). 24 males and 15 females were found on the trunks of the trees while one male and two females were found by beating the branches. As is usual with this species, all of the males were macropterous while all the females were brachypterous.

KNAA also found two females in Cwm Clydach NNR, Monmouthshire (SO2212), 5.ix.2006.

There has only been one previous record of this species in Britain (McLachlan, R, 1890, *Ent Mon Mag* **26**: 269-270) – McLachlan also found a substantial number together in the same area: about two dozen specimens on a paling on the outskirts of Lyndhurst, New Forest on 31.viii and 1.ix.1890. He also reported finding macropterous males and brachypterous females though he also thought he had a number of macropterous females.

Trichopsocidae

***Trichopsocus clarus* (Banks)**

RES obtained one female specimen from elder/hawthorn scrub at the northern end of Hunstanton cliff, Norfolk (TF679424) on 27.vii.2006. This is the second published record for England (Saville et al, loc.cit.).

***Trichopsocus brincki* Badonnel**

One was found by KNAA at South Penquite Farm, Blisland, East Cornwall (SX1075), 22.vi.2005, and Coombehead Farm, Arlington, North Devon (SS6139), 21.vii.2005. Two males were beaten from gorse on the open rough pastureland of Darren Ddu, Llanelly, Monmouthshire (SO223170), 4.ix.2006.

Three females were beaten from a yew in South Darley churchyard, Derbyshire (SK267615) on 31.vii.2006 (the same bush that *Peripsocus parvulus* was recorded from) by RES. On 4.viii.2006 a further two females were found on an introduced

conifer along the roadside near North Britain (SK302649) about four kilometres from the first location.

Twenty-seven cones of Douglas fir *Pseudotsuga menziesii* and spruce *Picea* sp., blown down in gales, were collected by JHB in Treborth Botanic Garden, Bangor (SH552710, vc49) on 3.xii.2006. They were kept indoors in a sandwich box at 10-15∞ C, and over the rest of the month four adults and one juvenile *T. brincki* were found among them, det. BS. This record is particular interesting since it suggests that the species may be capable of over-wintering as an adult.

Our previous debate (Saville et al, loc.cit.) concerning whether this is an overlooked native or yet another recently establishing introduction appears to have been resolved. It is clearly rapidly spreading across the country.

Elipsocidae

***Propsocus pulchripennis* (Perkins)**

On 31.viii.2004 a visit by GMEO to the East Sussex SSSI/NNR at Newhaven's undercliff resulted in the capture of three specimens of this very distinctive species. The site is a chalky place with rockfalls strewn around, often reaching to the shingle. Because of the presence of brambles, collecting with a net was ineffective, and a simple (transparent) plastic 'sandwich' box was used instead, hitting over the vegetation with the lid and seeing what fell into the box. The specimens were found in a rather small area of rank vegetation where the shingle meets the major vegetation (TQ448000): one specimen on a *Chenopodium* species (possibly Good King Henry), the other two on nettle. All the specimens have been housed in the Booth Museum, Brighton.

This is the first record for mainland Britain, the only other records being from the Isles of Scilly (Saville et al, loc.cit.).

Psocidae

***Psocus bipunctatus* (Linnaeus)**

LC swept and beat several specimens from a lichen-encrusted Oak *Quercus robur* L. branch at Blaxland Farm, Broad Oak near Canterbury, Kent (TR161634) on 30.vii.2006. The identification of one of the specimens was confirmed by KNAA and RES. According to New (1974, 2005) this species had not been recorded in Britain since 1837. A further examination of the site on 9.ix.2006 revealed no further specimens.

— R. (Bob) E. Saville, 20 Downfield Place, Edinburgh EH11 2EL (Email: info@lothianwildlife.co.uk), Keith N. A. Alexander, 59 Sweetbrier Lane, Heavitree, Exeter EX1 3AQ (Email: keith.alexander@waitrose.com), John H. Bratton, 18 New Street, Menai Bridge, Anglesey LL59 5HN (Email: jhnbratton@yahoo.co.uk), Laurence Clemons, 14 St. John's Avenue, Sittingbourne, Kent ME10 4NE and G. Marcus E. Oldfield, 33 Dene Vale, Brighton, East Sussex BN1 5ED (Email: Moldbug3@ntlworld.com)

Bloxworth Snout *Hypena obsitalis* (Hb.) (Lep.: Noctuidae) hibernating in German wartime bunkers on Guernsey and Alderney

During the German wartime Occupation of Guernsey and Alderney from 1940-1945 an enormous number of military fortifications, varying in size, complexity and purpose, were built all over both islands. On Guernsey, many still stand today. Some, such as those set mainly above ground on the cliffs, are enormous, with walls of two metres thick reinforced concrete, while others are underground and take the form of tunnels or much smaller bunkers. The entrances to these underground bunkers today are mainly overgrown, and more or less hidden from view, but inside they have withstood the march of time remarkably well showing little signs of wear, and they remain much as they must have been 60 years ago. But whereas during the Occupation they were used mainly to accommodate troops, or to store ammunition, today (those which are easily accessible) mainly contain just the signs of contemporary youthful activity, much of it illegal. They also contain hibernating Lepidoptera.

Of these smaller underground bunkers, the ones the moths seem to favour are those which have several inner chambers, typically reached along a narrow corridor and around several bends, where the insects are not exposed to the elements. These bunkers are not necessarily dry, but they are not draughty, and they are absolutely dark. The species commonly found are the Herald *Scoliopteryx libatrix*, usually in small numbers; the Twenty-plume Moth *Alucita hexadactyla*, in much larger numbers; and the Bloxworth Snout *Hypena obsitalis*, which can sometimes be present literally in hundreds. On 8 February 1972 Rich Austin, now the Guernsey recorder, counted over 200 *obsitalis* in just a small part of the (currently inaccessible) Mirus battery (Carter, 1972, *Ent. Gazette* **23**: 267) and on 4 March 1989 my wife Pat and I, while looking for bats, found 103 *obsitalis* in a tunnel which had once led to a searchlight higher up a cliff. On 2 February 2006, in this same tunnel, we found 68 *obsitalis* with 141 *hexadactyla* and 21 *libatrix* – but never any bats.

The same is the case on Alderney where there are also many bunkers. David Wedd, an Alderney resident and frequent visitor to the other islands says: "I have found *obsitalis* in many bunkers, but only those where Pellitory-of-the-Wall *Parietaria judaica* grows around (or actually on) the outside walls, and for much of the year ova, larvae, pupae and moths can be found together. On Alderney they are particularly numerous in two bunkers at the edge of Longis Bay, where the Bloxworth Snout occurs along with *hexadactyla* and *libatrix,* but also the Peacock butterfly *Inachis io,* Small Tortoiseshell *Aglais urticae,* Satellite *Eupsilia transversa* and this winter a single Buttoned Snout *Hypena rostralis.* We have not disturbed the bunkers since this recent cold spell started, but until the New Year numerous *obsitalis* were fluttering outside in the evenings, and the ones inside were extremely mobile (whereas the other species were well into hibernation.) The occurrence of Bloxworth Snout to light is quite rare. During 2005-6 we have regularly run mv traps quite near to the bunkers, and have taken just one *obsitalis* at light, yet have watched the moths fluttering in numbers less than 50 metres away." (Wedd, pers. comm.)

Following an exchange of e-mail messages on the *ukmoths* mailing list in which the over-wintering strategy of the Bloxworth Snout was discussed, three enthusiasts from the Midlands, Keith Tailby, Mark Hammond and Graham Finch, decided to visit Guernsey with a view to seeing and photographing them. Their plan was to fly from Birmingham, returning home the same day, and the early date chosen for their visit, 16 January 2007, would normally have been ideal. However, the last few winters here on Guernsey have been very mild, the present winter exceptionally so, with the nature correspondent of our local newspaper reporting that primroses, which normally bloom in time for Christmas here, had been in flower in his garden since 20 September, and early narcissi since mid-November. In early January, in preparation for the visit, and with daytime temperatures reaching 11°C, Pat and I visited the five bunkers we had decided to show our visitors. We were dismayed to find that although one or two Bloxworth Snouts were present in each of four of them, in the searchlight tunnel there were just 23 albeit with 10 *libatrix* and numerous *hexadactyla*. This did not bode well especially when a week later, with daytime temperatures then reaching 15°C, another very brief visit found just 12 *obsitalis*. In near-desperation, fearing there would be none left at all, six were potted up, taken home and placed in the fridge. Fortunately, there were then several cold nights when temperatures dropped to 5°C and we were hopeful that no more moths would leave the bunker. But on the day, to our surprise, we found between 40 and 50 *obsitalis* – not only had they stopped leaving the bunker they had actually returned although, as David had observed on Alderney, they were skittish and easily disturbed, whereas the other species seemed unaffected by our presence.

A further interesting observation had been made by Mark who commented that when he had disturbed a Bloxworth Snout in one of the other bunkers, it had flown into the dark rather than towards the daylight. So when I came to release the six potted specimens back into the searchlight tunnel I chose a point near the entrance where they could fly towards either the dark or the light – each chose to fly into the dark.

The Bloxworth Snout is not uncommon in Guernsey although, as David has also found on Alderney, it rarely comes to light traps or lighted windows and is more often noticed hibernating in sheds and greenhouses. The moth was first recorded on Guernsey in the autumn of 1962, and then again in the autumn of 1963, and although presumably the latter could have been fresh arrivals, had they been locally-bred then their parents would have survived the *exceptionally severe winter* here when temperatures fell in January 1963 to – 8°C (*Transactions of La Société Guernesiaise* 1962, 1963). How could a species which is almost at the northern limit of its range, and which over-winters as an adult, have survived such conditions? Taylor has described seeing the Tissue *Triphosa dubitata* hibernating in a cave in Breconshire in which the temperature at the time was 10 - 13°C and which he felt *probably varies very little from this* (1979. *Ent. Rec.* **91**. 173 -174). And in a detailed study of *dubitata* and *libatrix* hibernating in a partly-subterranean Victorian fort at Box Hill in Surrey, Morris and Collins found that during the study period of November to April, although the external temperature varied from -4°C to +22°C, the internal

temperature was always in the range 2 - 6°C (1991. *Ent Rec.***103**: 313-321). Some of the underground bunkers are enormous – the Mirus battery is large enough to have accommodated almost 300 men – and many are now on private land where they are inaccessible and lie undisturbed. Perhaps those early arrivals survived the winter by retreating deep into the heart of these large structures?

I am grateful to David Wedd for allowing me to reprint verbatim his response to my request for information and for his helpful comments on this note.– P. D. M. Costen, La Broderie, La Claire Mare, St. Peters, Guernsey GY7 9QA. (E-mail: pcosten@guernsey.net)

Hazards of butterfly collecting: Paragliding butterflies – Ghana 2007

Throughout February 2007, a huge butterfly migration flew south-southeast from northern Kenya towards Tanzania. It was wholly composed of a single species, the Common Caper White *Belenois aurota* Fabricius. Such migrations are frequent in East Africa, but it gradually became clear that this was an exceptionally big event. Together with James Wolstencraft in Tanzania, I somehow became information coordinator on this event and we share a file of some 400 e-mails on the matter, ranging from brief, single observations to painstaking attempts at establishing a maximum number of facts about the size intensity and nature of the event. We have not yet analyzed the data. I really look forward to having a huge map of East Africa on the floor of my flat with little flags showing the data from each of the many observations. It will look a bit like the "operations room" in countless films about the 'Battle of Britain' during World War II. I am a rather cautious person, but I hazard the guess that more than 100 million individuals were involved [watch this space].

Among all this correspondence came a – self-admittedly irrelevant – bit of information from Kuruman in South Africa. One Walter Neser wrote that while he was paragliding at 1,000 metres he had seen many white butterflies flying in the thermal together with the vultures that he was trying to photograph. The following e-mails were exchanged during February/March:

Larsen (TBL) to Neser (WN): "This obviously has nothing to do with the East African migration, but it would be of great interest if any of your pictures are of sufficient resolution to identify the butterflies in question."

WN to TBL: "My parents know butterflies well ... they might be able to make an identification."

TBL to WN: "If they can, we should do a joint paper for *Metamorphosis*, the journal of the South African Lepidopterists' Society."

WN to TBL: "OK ... I am in Ghana at the moment and will be traveling a lot, so it may be a while."

TBL to WN: "Amazing, I'll be studying butterflies at Bobiri in Ghana during much of March and April. You must try to visit there. I heard some rumours about paragliding at Nkawkaw which is not far from Bobiri. You involved with that?

WN to TBL: "Yes ... we are flying at Nkawkaw 5 to 10 April. Come along and you can have a ride. I am actually passing Bobiri just now, but have no time to stop. Call me on my Ghana mobile."

TBL to WN: "I'll be arriving Bobiri with two friends – 7 April seems suitable. I always wanted to try a paraglider. It would be great if it were to happen."

I was staying in the Bobiri Butterfly Sanctuary for several weeks to continue a butterfly census that will also act as a baseline for a comparative survey to be conducted between 2090 and 2100 to study potential long-term changes in butterfly biodiversity. Of particular interest is whether forest fragmentation has led to an 'extinction debt' that remains to reveal itself. The effects of climate change may also change the composition of the butterfly fauna, which would be an interesting and important issue to study. Finally, the possibility that Bobiri itself will be degraded by human activity cannot be ruled out; the effects of that would be significant as well. Those of us involved in the present survey will probably not be around in 2090-2100 – but King, the kind security guard at the Bobiri guest house, put it well: "But your souls will be there!"

Bobiri is a nice forest and nice forests are usually not within the range of Ghana's burgeoning cell-phone range, so on 6 April I went off to the neighbouring village to call Walter. He came over loud and clear: "Come tomorrow to Hotel Rojo in Nkawkaw before nine. Then we can have some breakfast before going up the mountain for launch. You can fly with me a couple of hours later when the thermals are usually best."

It is worth looking at the probability, or rather improbability, of the sequence of events related in the above: WN posting his observation on that specific migration website – 100:1. TBL responding to this – 10:1. WN being in Ghana and saying so in the reply e-mail – 100-1. TBL guessing that he had something to do with the events in Nkawkaw – 10:1. TBL being in Ghana at the time – 10:1. I am being quite modest in assigning these probabilities: they nonetheless add up to a total improbability of ten million to one – surely enough reason in itself to go and give paragliding a try. So we met at Hotel Rojo and Walter turned out to be a very nice man with huge responsibilities. He was actually coordinating a 'paragliding festival' together with the Ghana Ministry of Tourism. At the breakfast table were seventeen invited glider pilots from all over the world and an array of journalists from the vigorous Ghanaian press: all part of putting Ghana on the world tourism map in a more exciting way [some might say!] than watching butterflies in the Bobiri Butterfly Sanctuary.

At 09.00 hrs we set off for the launch site on the magnificent Akwapim Escarpment. Walter believes it to be one of the best paragliding localities in the world. The drop to the designated landing field is only about 450 metres, but this is redeemed by a steady supply of thermals that allow the gliders to stay up for long periods – the day before someone managed to be airborne for more than six hours. A

happy audience was already present. The Minister of Tourism arrived; I think he was a bit unhappy that the cabinet had previously decided that it would not be 'appropriate' for him to fly, but he did add gravity to the event. Gliders were unpacked from oversized backpacks and pilots began to take off. Three of four bounds down the take-off ramp yanks up the wing, and when the wind takes hold, almost unbelievably up goes the tiny, fragile structure. There is a similarity with a butterfly take-off, though no flapping of wings is necessary; a paraglider cruises at about 35 km per hour, less than the large *Charaxes*-butterflies at the launch site can do.

Nothing between you and the ground. You cannot even see your own feet. But, on this occasion, also no butterflies

My own take-off, with Walter as the pilot, was less elegant than I might have wished for. A slight reversal of wind stalled our take-off – I stumbled and was dragged along the ground for a few metres, though we were actually more-or-less airborne. It looked more dramatic than it was but I was cheered by the audience applause when we were airborne fractions of a second later. Walter had noticed small black butterflies migrating just above the scarp (almost certainly the African Beak *Libythea labdaca*, but the thermals were not friendly and we could not get high enough. The butterfly net I had brought never came into use. We had a wonderful flight. The passenger is hooked onto the pilot and sits right in front of the glider; you do not even see your own feet when looking straight down. Noise from the 'wing' above you is so low that you hear sounds from the ground below and 'cockpit conversation' is easy. We did find a few thermals thanks to circling vultures, but they were not strong, and all good things come to an end. We landed safely on a designated football pitch just in front of the Rojo Hotel – a 'dust-devil' on landing gave a bit of unwanted lift so we had to drag the gear somewhat longer than we really wanted.

The result of the improbability of one to ten million of our e-mail correspondence, ended up being one of my most exciting days since my one and only parachute jump some 25 years ago. It really is great to do 'something completely different' at the age of 63. If you go to Ghana a few years from now there will probably be competent Ghanaian pilots who can take you for a ride – do let them. And keep your eyes skinned for migrating butterflies! — TORBEN B. LARSEN, UNDP Vietnam, c/o Palais des Nations, 1211 Geneva 10, Switzerland.

Xanthia icteritia Hufn. (Lep.: Noctuidae): A comment on infraspecific variation, especially in regard to Kent

This formerly very common species although appearing in county and other lists is rarely afforded detail, or even mention, of its infraspecific forms. Tutt (1892. *The British Noctuae and their Varieties*) gives an excellent account of eight forms in two parallel series based upon their ground colour and an abridged version of this appears in Heath et al (1983. *The Moths and Butterflies of Great Britain and Ireland*). Chalmers-Hunt (1966. *The butterflies and moths of Kent*) has very little to contribute, noting that ab. *flavescens* Esp. is widely distributed in the county, and that ab. *cerago* Hb., ab. *aurantia* Tutt and ab. *imperfecta* Tutt from Kent are represented in the National (RCK) Collection.

Until quite recent times the collecting of a plastic bag of sallow catkins would be rewarded in due course, and with little attention, with an abundance of *X. icteritia*, and a few of other species of moths. Such collections, especially when repeated in the same locality for several years, give an accurate assessment of the composition of the local *X. icteritia* population. To-day, at least in Kent, this operation brings little reward. In north-west Kent the two commonest forms have been ab. *fulvago* L. and ab. *aurantia*, the penultimate members in depth of markings in the two series, by use of this method. Considerably less common are the two lightly marked forms, ab. *cerago* and ab. *imperfecta* while ab. *flavescens* and ab. *obsoleta* Tutt are of regular, but of only occasional occurrence. In my collection I have one specimen of ab. *suffusa*, bred from Swanscombe 30.viii.1951; I have not encountered ab. *virgata*, in north-west Kent or elsewhere, and this would seem to be rare throughout the species' range in the British Isles.

The identification of moths which fall into two distinct clines presents difficulty, and to minimise this I have used the following scheme which is a simplification of the descriptions of the varieties as given In Tutt 1892:

ab. *cerago* and ab. *imperfecta* have some reddish markings on the forewings, but they do not coalesce to form a transverse band.

ab. *fulvago* and ab. *aurantia* have a definite, somewhat ragged fascia which usually bifurcates towards the costa to include the reniform stigma.

ab. *suffusa* and ab. *virgata* are heavily marked with the central band and its branch to include the reniform stigma. This fascia is well defined and solid. It is more extensive than that of *X. togata* Esp. and is broader on the costa; *X. togata* tends to have the reniform stigma free.

In north-west Kent, apart from the two most heavily marked forms, in most counts the yellow varieties have slightly outnumbered the orange forms, and recent garden mv light records have confirmed this trend. However, there appears to be evidence that this slight imbalance does not prevail throughout the British Isles. Barrett (1899. *The Lepidoptera of the British Islands*. p.363) describes the species as being pale yellow, and later, under the heading of variation, states that in southern woods specimens may have the ground colour ochreous or orange-yellow. Barrett also

states that ab. *flavescens* (and he emphasises the pale yellow ground colour), is found more often in northern localities.

In 1987, sallow catkins collected at Pontoon, Co. Mayo, produced a few *X. icteritia* larvae from which a dozen moths were bred, the majority of which were ab. *cerago* and the remainder ab. *fulyago* – a small sample, all with yellow ground colour and the majority lightly marked. The catkins were collected from small bushes over a limited area. Nevertheless, despite the small sample, it is sufficiently interesting to suggest that *X. icteritia* in Ireland is worthy of study. Baines (1964. *A Revised Catalogue of Irish Lepidoptera*. p.40) does not include Co. Mayo in his list of counties in which *X. icteritia* has been recorded.— B. K. West, 36 Briar Road, Dartford, Kent DA5 2HM.

MOTHS COUNT and the National Moth Recording Scheme – an update

The Moths Count: National Moth Recording Scheme project is now officially up and running, having been launched by Sir David Attenborough on 2 May 2007. *Moths Count* is the name given to the whole project, which includes many training and awareness raising activities alongside the core aim of setting up a long-term National Moth Recording Scheme (NMRS) covering macro-moths in the UK, Isle of Man and Channel Islands. The project is a partnership of many national and local organisations, businesses and individuals, led by Butterfly Conservation. The project team consists of Richard Fox (Project Manager), Les Hill (Database Manager), Zoë Randle (Moth Recording Co-ordinator), Susan Anders (Outreach Officer) and Sarah-Ann Boon (Project Assistant). The team is based at Butterfly Conservation's Head Office at East Lulworth, Dorset.

The purpose of Moths Count is to widen the appeal of moths and moth recording throughout the UK and to establish an ongoing recording scheme for the 900 plus species of macro-moths. The resulting dataset is likely to be one of the largest biological datasets in the world. Recent research has highlighted the decline of many species of moths that were once common and widespread. The data collected from this project can ultimately be used to improve knowledge and understanding of moths and the changing distribution and status of each species and to inform effective biodiversity conservation and sympathetic land use policies. Zoë Randle will be working with County Moth Recorders, local moth groups, Butterfly Conservation Branches and other organisations to develop the NMRS and to strengthen the important support network for new and existing moth recorders. This will be achieved by recruiting volunteers where there are currently no or few moth recorders; providing training opportunities as appropriate; supporting County Moth Recorders and filling gaps in the vice-county network. The NMRS database will be up and running during the summer, at which point we hope that County Moth Recorders will be willing to provide copies of their local data to create the 'national' data set. Les Hill will provide technical assistance in the interchange of data between the National Scheme and County Moth Recorders.

Specialist training workshops are being organised for existing moth recorders to enhance their skills. These will include identification of critical species; surveys of rare species; working with the media; planning and organising pubic events and using computers to manage moth records. Feedback and useful information for moth recorders is an integral part of the project. The NMRS will only be a success with the support of moth recorders. Annual newsletters, online provisional distribution maps and training and public event listings will be available on the project website (www.mothscount.org) in due course.

Aside from developing and running the National Moth Recording Scheme, the *Moths Count* project plans to encourage a greater appreciation and enthusiasm for moths among a new, wider audience. This will be achieved in a number of ways, not least by working to get positive coverage of moths in the media. One new event will be an online, annual 'citizen science' Garden Moth Count, which will encourage members of the public to look for and report easily-identified moths such as the Humming-bird Hawk-moth. The Garden Moth Count will be taking place from Friday 22 June to Sunday 24 June 2007; this is in addition to National Moth Night, which is planned for Saturday 11 August this year. Many other public participation events have been planned this year, in partnership with the moth recording community and partner organisations.

How can you take part in the National Moth Recording Scheme? Simply continue to (or start to) send all your moth records to your County Moth Recorder. If you have other questions or would like to join the project mailing list, please contact Sarah-Ann Boon (saboon@butterfly-conservation.org).— ZoË Randle, Butterfly Conservation, Manor Yard, East Lulworth, Wareham, Dorset BH20 5QP.

Scotch Annulet *Gnophos obfuscatus* (D. & S.) (Lep.: Geometridae) on a pebble beach

On the night of 19/20 July 2006, Jeff Waddell and I visited a previously unworked area of Lossie Forest on the Moray coast at O.S grid reference NJ 3166. The coastal strip here consists of successive parallel pebble beaches, none more than a few metres high, the oldest now over half a kilometre inland. Some are partially vegetated, being of botanical as well as geological interest. While working the low and level strip just inland of the present beach with torch and net well after dark, I was surprised to encounter at least six Scotch Annulet *Gnophos obfuscatus* flying gently over the pebbles and sparse vegetation. All were males in pristine condition as if newly emerged. This species is normally associated with inland crags, gullies, scree slopes and quarries, but there was no such habitat at the site or anywhere in the surrounding area. Presumably the extensive pebble beaches fulfilled its need for exposed bare rock, albeit in this case horizontal rather than vertical.— Roy Leverton, Whitewells, Ordiquhill, Cornhill, Banffshire AB45 2HS.

News on the conservation of some moths listed in the UK Biodiversity Action Plan and two additional British Red Data Book species

The aim of this article is to report the main high-lights of the conservation work on UK Biodiversity Action Plan priority species during 2006, and also the Silurian moth *Eriopygodes imbecilla* which has twice been proposed for inclusion as a priority species, and the Scarce Hook-tip *Sabra harpagula*, a Red Data Book species (Shirt, D, ed., 1987, Nature Conservancy Council, Peterborough). This follows in the foot-steps of similar annual reviews since 2000 (see *Ent. Rec* **113**: 121-129 (for 2000), **114**: 149-153 (for 2001) **115**: 213-219 (for 2002), **116**: 134-137 (for 2003), **117**: 111-124 (for 2004) and **118**: 211-218 (for 2005)).

Barberry Carpet *Pareulype berberata* (D. & S.)

During fieldwork in 2006, I was joined by Kelly Thomas, Moth Conservation Officer for Butterfly Conservation. Some funding for this and for Kelly's involvement was provided by the BC Action for Threatened Moths Project. We were also invited to inspect and advise on a project in which the Veterinary Laboratory Agency (VLA) of DEFRA have planted over 500 Barberry plants near to the traditional site for the Barberry Carpet at Bury St Edmunds, Suffolk, with the VLA covering our costs. Additional survey work also took place by others in Oxfordshire and Dorset, with positive results at both known breeding sites. The key observations and developments in 2006 are as follows:

The first generation of larvae started a little later than in recent years, due no doubt to the cold weather throughout April which will have delayed the emergence of the adults in May. In recent seasons mid June has been the time to start monitoring both the native populations and the establishment sites for larvae. However a brief check of the establishment site in Northamptonshire on 12 June produced no larvae and those of the Scarce Tissue *Rheumaptera cervinalis*, which also feeds on Barberry *Berberis vulgaris*, were all substantially less than 1cm in length, another indication of the lateness of the season in comparison with recent years. Kelly's first sessions with me were therefore arranged for 28 & 29 June. I am delighted to say that on 28 June we found plenty of larvae at the Northamptonshire site, of all sizes. On 29 June our inspection of the VLA site showed that neither the site nor the hedges on its boundaries contain any well-established Barberry bushes so there will be no resident population on the site. Of the 500 new Barberry plants, which were installed in April 2006, a proportion were showing severe symptoms of drought and frequent watering was going to be required to keep the rest alive through the growing season. If this is done, this fenced site will provide a safe and promising location for establishing a population of the moth in a few years time. We beat and searched for larvae at the traditional and historic native site the same day and also at one of three sites where larvae have been released over the years as part of official attempts to establish additional populations in Suffolk. The good news is that we found Barberry Carpet larvae distributed throughout the establishment site we examined. In all previous visits since this establishment trial was started, with the

release of 450 larvae in 2000 and 220 larvae in 2001, the subsequent generations of larvae have seemed to be restricted to just a few of the Barberry bushes at the east end of the site, so it is excellent news to find they are now colonised the whole of it, from one end to the other. The bad news is that we found no larvae at all at the historic site, where the last record, despite almost annual beating, is of a single adult on 26 May 1995. Neighbouring land-owners are now pressing Natural England to denotify the site, which is an SSSI on account of the moth and its long history there - it was first discovered present in the 1860s. There are proposals to build houses on the open farm fields right up to the Barberry hedges. In my view the SSSI should be retained because the site remains of scientific interest as the only site in Britain where the moth has been known to have survived continuously for over 130 years. The population was decimated by two fires during the larval stage in 1991, from which it never properly recovered. We now have the knowledge to restore the moth to this site and hopefully we will have the opportunity to do this.

Two clumps of Barberry in a farm hedge at Burwell, Suffolk, and four clumps in a hedge near Snailwell, Suffolk, were also beaten on 29 June, with negative results for both Barberry Carpet and Scarce Tissue.

On 5 September I was joined by both Kelly and Marc Taylor (Moth Officer for the Wiltshire Branch of Butterfly Conservation), to check some of the known sites in Gloucestershire (one native site) and Wiltshire (where we inspected five native populations, representing two metapopulations, and also one translocation site). Some other known sites in north Wiltshire had already been inspected for larvae by Andy Foster with Kelly, on 22 August with positive results, and Andy had captured an adult in his garden light-trap on 6 August. We found a high density of larvae at the Gloucestershire site – five larvae, ranging from second to final instar, from a single spot on the main bush – i.e. just enough of the plant to cover one Bignell beating tray. We also obtained two Barberry Carpet larvae from young bushes now 1.5-2m tall which we have planted by the main bush, confirming again, as on previous occasions, that the females will lay on and colonise these. However, we found no larvae yet on young plants about 1.5m tall now established at the Northamptonshire and by an occupied bush near Ashley, Wiltshire. We also found high densities of larvae at all three sub-sites of the more southern meta-population in Wiltshire, with some larvae seen basking on the upper surfaces of leaves in the warm, humid but overcast weather. Pleasingly, the hedges at none of these had been flailed so far this year. Provided they were not flailed for three weeks thereafter, all the larvae would have had the chance to pupate without interruption. Volunteers Godfrey and Michael Smith monitored the very successful establishment trial near Trowbridge, Wiltshire, and once again found larvae throughout this extensive system of hedgerows. At the tranlocation site to the north of all these, both the transplanted Barberry bushes and the young plants established around them, have grown really well and now form a thick linear clump, with additional planting proposed for 2007. However, as in 2005, no larvae were found on either, nor at the original donor site nearby, despite beatings by John Grearson. This is a site the author would like to inspect more closely for larvae in 2007. The good news here is that there is local

interest in planting more Barberry, supporting additional monitoring, and that there may even be additional well-established Barberry bushes in the area which could be supporting the moth (Gareth Harris, pers. comm.). Following our session together, Kelly had a positive result at the single known site in Dorset where supplementary planting of additional Barberry has been successful. Kelly and Mark Warn (Forestry Commission, England) found a single final instar larva there on 7 September, confirming the continuing presence of the moth, which is highly localised here and currently at a low population density relative to many of the other known sites. Kelly also visited the Oxfordshire site on 10 July 2006 with Christopher and Stephanie Carter and Dan Hoare (BC, London & South-east Regional Officer), and they were lucky to find a late larva of the first generation. Larvae were first found at this site in 2005, following the chance capture of two adults nearby in 2004 (see *Ent. Rec.* **117**: 252).

The establishment site in Lincolnshire was not inspected for larvae in 2006, but produced a positive result in 2005 (see *Lincolnshire Naturalist* **26**: 78-79) and will be examined in 2007.

Many Barberry plants are being grown in various places to increase the numbers of planting schemes now underway to support future populations of this moth. In 2006, for the first time, Polly Jones, Plant Propagator at Westonbirt Arboretum, has been experimenting with "air-pots", which encourage rooting, with much success.

Black-veined Moth *Siona lineata* (Scop.)

2006 was first year since 1987 that the author did not visit the five key sites for this species, all of which are in Kent. From one of these the species appears to have been lost due to unfavourable habitat management dating back to a mowing incident in February 2001 (see *Ent. Rec.* **118**: 212). There were no further records of the moth from this site in 2006, which was included in a monitoring programme conducted by Sean Clancy as part of the BC Action for Threatened Moths Project. Efforts are being made to return the site to a suitable state for the moth, with a view to natural recolonisation or establishment of a new population. The good news is that a sixth site, adjacent to one of the four occupied sites, appears to have been colonised. The site has been restored from scrub to herb-rich, mid-succession, open chalk grassland over the last decade as a result of work by the Kent Wildlife Trust and Kentish Stour Project, with many partners and supporters. A total of five adult moths was recorded by Sean on two dates in June 2006. These are the first records for the site since it became overgrown with scrub in the mid-1980s. To facilitate natural colonisation from the adjacent occupied site, a corridor of open ground was cut through a belt of woodland separating the two, with this work beginning three years ago, with additional clearance subsequently. Discovery in 2005 of the colonisation of the fifth site was reported in *Ent. Rec.* **118**: 212, **British Wildlife 17**: 53-54 and in Br. J. ent, Nat. Hist. **19**: 139-144. Monitoring in 2006 shows that numbers have been maintained at this site and at the three sites with surviving longer established populations of the moth numbers in 2006 were slightly above the average for recent years.

Four-spotted Moth *Tyta luctuosa* (D. & S.)
As in previous years, the Four-spotted Moth was recorded at its handful of major breeding sites in England, and as a few scattered individuals elsewhere in southern England. One of the major breeding sites, at Peterborough, Cambridgeshire (in the Vice-county of Northamptonshire), was monitored by the author weekly throughout the summer, from early May to late August, as it has been every year since 2000, with funding from Peterborough City Council, Cambridgeshire County Council and the Environment Agency. The results are used not only to gauge the effects of habitat management work on the site, but also to advise and train volunteer surveyors and others who are searching for, or maintaining, populations on other sites. The spring of 2006 proved to be a late one. The adult moths appeared later than in any of the previous five years and were five weeks later than in 2003. None were observed until 6 June. Other observers in Cambridgeshire and Essex, including Phil Jenner and Sharon Hearle, reported not seeing their first ones in other populations until the weekend of 3-4 June. Only after these sightings was the green light sent out to surveyors to begin searches elsewhere. At the Peterborough site the numbers of adults seen on the 1.1 km (0.69 miles) transect route during the flight season of the first generation (14 individuals) were smaller than in any of the previous six years (highest 120 in 2004), but this was probably a response to the fact that the sward vegetation here became increasingly rank between 2004 and the summer of 2006 as a result of lack of management, rather than being a more general trend related to weather. The last of the first generation were seen on 28 June, a very short flight season compared to previous years, when it has extended into the first.half of July. On 21 July the first of a second generation was seen and on 28 July five separate adults were observed. This is the largest single day count for the second generation at this site since walking the transect began in 2000. Another adult, the last of the year, was seen on 3 August, with zero counts on 11 & 16 August. The previous largest total count in the second generation was four individuals in 2002 and the previous highest day count was 3 on 24 July in that year. Clearly the prolonged very hot weather in 2006 arrived at just the right time for plenty of the larvae to produce summer adults, despite the low numbers and exceptionally late emergence of the first generation Whether this has been a useful strategy, or has led to the wasting of some of an already declined population will be seen in 2007. Fortunately, I can report that in the week between my visits on 3 & 11 August 2006 the key dyke bank on which much of the breeding occurs was scraped of most of the vegetation, including the woody plants which had begun to flourish, by a team from the Environment Agency workforce. This operation, which took place almost annually up to 2004, maintains the hot, dry microhabitat and sparser which seem to suit the Four-spotted moth and its larval foodplant, so the adults flying in 2007 should find the habitat in a substantially more favourable condition than in the previous two years.

After dark on 28 June, Kelly Thomas and I visited the known breeding grounds in Lincolnshire, where we searched for and found five larvae between 22.40 and 23.20 hours. The first four larvae were found quickly, between 22.40 and 23.00 hours, in a

favoured spot by a small former quarry at the west end of the valley, and the fifth when searching at the other end of the valley, confirming that larvae were distributed throughout the length of the south-facing side of this valley, as in previous years. The larvae ranged in size from 1.5-4cm and were found on the newer leaves of Field Bindweed *Convolvulus arvensis* in a sparse grass sward only 15-20cm tall. The first larva at each spot was found after only 1-2 minutes of searching. We then returned to the Peterborough site where we spent 30 minutes searching, from 00.15 to 00.45 hours, without finding any larvae. The caterpillars are clearly at a much lower density here, where the sward is substantially longer and lusher, partly as a result of lack of any cutting or grazing in 2004 and 2005.

The author has been advising Carl Bro, Anglian Water and the Environment Agency concerning the impact of a plan to replace and reroute a major water main at the Peterborough breeding site. Paul Clack, Senior Ecologist for Carl Bro, Dodie Honisett, Design Team Leader, and Tichatonga Mhlanga, Design Engineer, for One Alliance and Cameron Hutchinson, Construction Manager for Balfour Beatty and the author met up on site on 25 October, with maps of the plans, to discuss the construction work. The good news is that the proposed work should not effect the known breeding areas, and may result in an increase in breeding opportunities by creating bare ground on which the larval foodplant should thrive. The author will be monitoring this during 2007 and reporting back to the above and to BC.

The author also worked with Jane Ellis (BC, Midlands Brownfield Sites Officer), on a training event for volunteer Lepidoptera surveyors, which involved a visit to the Peterborough site on 6 June, and with Sharon Hearle (BC, East of England Regional Officer), during 2006 to conduct surveys and training workshops at the Kirtling Weirs and Great Wilbraham areas of Cambridgeshire and at some potential sites near to occupied areas in the vicinity of the extensive Littlebury population in Essex. On 6 June the training party saw four adult Four-spotted moths, an immaculate adult of the nationally scarce tortricoid *Commophila aeneana* and three individuals of the Grizzled Skipper butterfly *Pyrgus malvae* at the Peterborough site. All three species are now considered scarce in the region. On 14 June we located promising habitat for the Four-spotted moth at the Kirtling Weirs and saw four adult Four-spotted moths at Great Wilbraham. Returning for night-time searches for caterpillars, we found four Four-spotted moth larvae, from1.5-4cm, all within 50cm of each other, on green Field Bindweed foliage amongst sparse dry brown grass on a fence-line at Great Wilbraham at 23.15hrs on 4 July and one larva at the Kirtling weirs site at 00.45hrs on 5 July. These are almost certainly the first larval records for vice-county Cambridgeshire, at least in modern times. Proposed site work in the vicinity of Kirtling weirs is expected to increase the supply of suitable habitat during the next few years. On 2 August we searched the additional Littlebury sites by day for second generation adults, without success. However, the weather had suddenly turned cold and dull. The moth was still flying at the Peterborough site on 3 August, as noted above. The author will be conducting more workshops during 2007 to train and enable volunteers to assist in the surveying and monitoring this species for the newly

launched National Moth Recording Scheme. He would like to acknowledge the help of all the above-named individuals and organisations, and thanks the organisations for funding the various aspects of the work. He also thanks all the volunteers who attended the various events and wishes them well in locating additional populations of the Four-spotted moth in 2007.

Marsh Moth *Athetis pallustris* (Hb.)

Both the remaining known sites in Great Britain for the Marsh Moth were monitored for adults by light-trapping in 2006. Fearing that a planned light-trapping session to monitor the species at Saltfleetby National Nature Reserve on 25 May might be too early to see them this year, I moved the date to 31 May. This proved disastrous. Toby Ludlow who could not get to the revised date went on 26 May and recorded 14 in one light-trap. On 31 May, four of us, with eight traps, had a very cold night, with the minimum temperature falling to minus 2°C and we saw nothing of the moth and had only small catches of other species.

At the other site, Gibraltar Point National Nature Reserve , also on the Lincolnshire coast and some 35 km to the south, a single Marsh Moth was captured on 10 June 2006 (Paul Troake), for the second year running. Interestingly, this male was captured in a light-trap operated within the one area of woodland and plantation on the site, where there are some open grassy glades. The previous one, a male, on 5 June 2005 (also trapped by Paul Troake) was at the north end of Freshwater Marsh in an area called The Measures, which contains the line of an old railway track and is otherwise a mix of dry grassland with scrub and dune-slacks, rather like the breeding areas at the Saltfleetby NNR. These moths are the first two seen at Gibraltar Point since 17 May 1997 when one was recorded at a light-trap on the edge of the reserve in Aylmer Avenue, by Kevin Wilson, Site Manager for the Gibraltar Point reserve (for the Lincolnshire Wildlife Trust). During the 1970s the Marsh Moth was widespread and fairly frequent at both sites. See *Ent. Rec.* **118**: 132-134 for more information.

The litter-pile technique was used to monitor the larvae again in 2006, this time at three places on the Saltfleetby reserve and near Freshwater Marsh at Gibraltar Point. This monitoring started on 30 September and 1 October in 2006 and was continued and completed on 8 October 2006. No Marsh Moth larvae were found in the twenty-two litter-piles constructed to sample the traditional collecting grounds on the Saltfleetby NNR, when the piles were searched on 8 October. In stark contrast, a total of 82 Marsh Moth larvae was found in the 20 litter-piles in the central part of the reserve which has only been surveyed in detail in the last three years. This total is over twice as many as the 40 from 24 piles there in 2005 and raises the estimate for the minimum density of Marsh Moth larvae in this area of dune grassland in 2006 to between 500 and 600 larvae per hectare or about one per $20m^2$. No Marsh Moth larvae were found in nine piles constructed in nearby ranker grassland nearer to the coast, sifted on 30 September and 8 October, nor in eight piles constructed at the seaward end of Mere Meadow at Gibraltar Point and sifted on 1 October.

The Marsh Moth was the subject of a 15 minute feature filmed for television on 14 September 2006 on site at the Saltfleetby-Theddlethorpe Dunes NNR in Lincolnshire, for broadcast by the BBC in the summer of 2007.

Reddish Buff *Acosmetia caliginosa* (Hbn.)

After many years of survey, this species is only currently being monitored in the adult stage on one part of its complex single known British locality, on the Isle of Wight. Various key spots were suctioned-sampled for larvae during a brief visit by Kelly Thomas and Dan Hoare in 2006. Larvae were found in the expected places. I visited all the breeding areas in August and I was pleased to see that habitat management work by the Hampshire and Isle of Wight Wildlife Trust and partners, particularly the control of scrub regrowth and the selective clearance of some additional stands of scrub, is managing to keep pace with natural plant succession and maintain breeding areas of open, heathy sward, rich in Saw-wort *Serratula tinctoria*, the sole larval foodplant. I have often reported the benefits for other species of this work to maintain te last British population of the Reddish Buff. Some of the many other species of Lepidoptera which are benefiting include the Kent Black Arches *Meganola albula* and the Small Pearl-bordered Fritillary *Boloria selene*. The local population of Adders *Vipera berus* is thriving and I had several sightings during my visit. The best news of 2006 is that a pair of Nightjars *Caprimulgus europaeus* bred in the area for the first time since the late 1980s.

White-spotted Pinion *Cosmia diffinis* (L.)

The highly localised White-spotted Pinion moth *Cosmia diffinis* began flying, and possibly dispersing, early in 2006. On 22 July one was captured in perfect condition at Elton, Northamptonshire, the first record for the area (Brian Stone). Elms *Ulmus* spp., the larval foodplant, are well represented in the village, but Brian has not had the moth here before in several years of trapping and this result may represent a small extension of range. Monitoring of the known sites in Huntingdonshire and Cambridgeshire, by Barry Dickerson and others produced the moth in good numbers where sought. Ruth Edwards, who has the moth breeding on her farm in Cambridgeshire, considers 28 July to 6 August to be the time she captures most adults in her garden light-trap, although at other sites 10 August seems to be a good date to hit peak numbers. Unfortunately, the main stand of mature elms on her farm is suffering another wave of Dutch elm disease, and the majority of the trees had very thin canopies of leaves in 2006 and are clearly dying. Only three trees in the stand still had substantial leaf cover. I am helping Ruth to monitor the numbers of moths as the disease progresses, by placing traps in fixed positions nearer to the trees than Ruth is able. My light-trapping on 2 August 2006 confirmed the moth still present at both ends of the stand, but numbers appear to be dwindling. It will be exceptionally interesting and important in understanding the population dynamics of the moth in relation to the disease to continue recording after all the mature trees have died at this stand, which is likely in the next three years, and to see if the moth is able to survive on the lower regrowth alone or has to recolonise from elsewhere once the regrowth has grown larger.

On 2 August I discovered the White-spotted Pinion in a stand of tall elms nearly 100m in length at Longstanton, Cambridgeshire, as part of the BC Action for Threatened Moths Project (with thanks to Sharon Hearle and John Hobson). This is a site from which it has not been recorded before and where there are opportunities for planting additional, disease-resistant elms as part of a project to construction new housing in the area. It was a blustery cool night, poor for moths and one of a series of such nights at this time. By 22.15 hours I had a singleton of the species in an actinic trap within the elm stand in which only three moths of other species had been caught by this time. Running the trap until 23.00hrs produced no more and none came to a Robinson trap I was operating in the open by the elm trees. The moth was recorded in double figures on 9 August (by Mark Hammond *et al.*) at its known stronghold at Overhall Grove, Knapwell, which was discovered as a result of targeting the species for National Moth Night on 10 August 2001 (see *Atropos* **16**: 34-37). On 11 August 2006, encouraged by Mark's result, I investigated the four stands of English elms *Ulmus procera* at the RSPB estate at The Lodge, Sandy, Bedfordshire, with several new but keen moth recorders from the RSPB. Again it was blustery but the elms provided some shelter. We recorded one Lesser-spotted Pinion *C. affinis* but no White-spotted Pinion despite trapping all night. These stands of elms are within 2 km of the stand at Potton where, in 2005, John Day and I discovered the only currently known population in Bedfordshire (see BW 17: 54),and they are certainly worth surveying again on a calmer night.

Silurian *Eriopygodes imbecilla* (Fabr.) (Red Data Book species, proposed UK BAP priority species)

A break-through in our understanding of the larval ecology and phenology of the Silurian moth *Eriopygodes imbecilla* in the British Isles was made in April 2005 with the discovery of the first larvae to be found in the wild (see *Ent. Rec.* **118**: 216-217). However, the pre-hibernation phase of the life-cycle in the wild remained unknown, with no larvae having been found until the spring. Some progress on this subject was made on the afternoon of 22 September 2006 when Martin Anthoney and the author searched for and found a pre-hibernation caterpillar of the Silurian moth using a portable suction sampler at the site in the mountains of Monmouthshire where the moth was first discovered in Britain in 1972. This discovery clarifies the timing of the life-cycle and the stage and size at which this very rare species overwinters. We found the caterpillar at 18.02 hours in the ninth of a total of fifteen samples. Each sample involved one minute of "hoovering" in amongst the sward of Bilberry *Vaccinium myrtillus*, Heath Bedstraw *Galium saxatile* and fine grasses in which we had seen final instar caterpillars feeding on 13 April 2005, but had failed to find pre-hibernation larvae by sweep-netting on 1 September 2005 (*Atropos* **27**: 20-23). The caterpillar measured 14mm in length and was found one and a half hours before dusk. After dark, Anthony Price and I suction-sampled a second site of similar high moorland habitat (500-600m above sea-level), 4 km to the north, where we have previously recorded both adult Silurian moths and post-hibernation larvae. Our first sample, at 21.20 hours, produced one Silurian larva and there were two

more in our third sample, but none in our last two of a total of five samples. All the larvae measured 13-14 mm in length when extended and active. Our previous work suggests the larvae are not more abundant at the second site. It is more likely that they are more easily sampled after dark because they are emerging from day-time hiding places amongst the vegetation. By day the captive larvae hid under leaves in the box in which they were placed, and when only one small Bilberry leaf was provided amongst grasses and Heath Bedstraw, all four larvae were found to have crammed themselves under this one. Although the larvae may have been wandering about after dark, a fifteen minute search by torch-light by Anthony and the author between 21.45-22.00 hours on this mild, calm night failed to reveal any larvae feeding, unlike similar searches in the spring, when larvae were found in prominent positions on Bilberry and Heath Bedstraw. The author thanks Martin Anthoney and Anthony Price for their help in the field, Mike Wilson of the National Museum of Wales, Cardiff, for the loan of two vacuum samplers, and the Monmouthshire Moth & Butterfly Group, the family of the late Neil Horton and the South Wales Branch of Butterfly Conservation for financial backing for this project.

Scarce Hook-tip *Sabra harpagula* (Esper) (Red Data Book species but not a UK BAP priority species)

On 28 June 2005 a female Scarce Hook-tip was captured, eggs obtained and larvae reared (see *Ent. Rec.* **118**: 215-216 and *BJENH* **19**: 254-257). The pupae were overwintered and in 2006 several adults emerged, from which a single fertile pairing was obtained on 6 June, and larvae subsequently reared as detailed for the previous year. The most noteworthy additional observation is that a single adult emerged outdoors on 16 November 2006 from a larva which had started off its development indoors, but which had been outdoors from the third instar. The summer of 2006 was markedly warmer than average, with prolonged intense heat in July in particular, and a very mild autumn. Clearly, the British population of the species is capable of producing a second generation, as it does routinely further south in Europe, but it would appear from the late date, in November, and that only one adult emerged, that the species is British population is strongly adapted not to do this. No fieldwork took place in 2006. The work in 2005 was assisted by a grant from the BENHS.

Several of the studies undertaken form part of Butterfly Conservation's Action for Threatened Moths Project, which is part funded by English Nature (now Natural England), and the author is indebted to nominated officers Mark Parsons (BC) and David Sheppard (EN) for helping to ensure continued funding. Other partners and colleagues are acknowledged within each section and I am most thankful to all of them. Private land-owners and some others are generally not named, for reasons of privacy and security, but their help is also greatly appreciated.— PAUL WARING, Windmill View, 1366 Lincoln Road, Werrington, Peterborough, PE4 6LS (E-mail: paul_waring@btinternet.com).

THE DOUBLE LINE *MYTHIMNA TURCA* (L.) (LEP.: NOCTUIDAE): NOTES ON ITS HABITATS, FOODPLANTS AND SUGGESTED MANAGEMENT IN ENGLAND AND WALES

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Abstract

The association of *Mythimna turca* (L.) (Lep.: Noctuidae) with open willow scrub, bracken scrub and Rhôs pasture or Culm grasslands is discussed. Larval foodplants are listed, including previously unpublished data, and associations with the different vegetation communities are described. Management recommendations are provided, with the aim of creating or restoring tussocky swards (perhaps through light cattle grazing) closely interspersed with areas of short turf.

Introduction

The Double Line *Mythimna turca* (Linnaeus) is classed as Nationally Notable (occurring in less than one hundred 10km squares in Britain) and is a Priority Species within the UK Biodiversity Action Plan (UK Biodiversity Group, 1999). It is largely confined to Wales and south-west England, but is also known from a very few sites in south-east England (Waring & Townsend, 2003).

It is listed in many moth identification guides as a woodland species (e.g. Porter, 1997, Skinner, 1998) and on some sites it appears to be associated with grassy woodland rides, e.g. in Wales (Fowles, 1988). Waring & Townsend (2003) list the following habitats: mature woodland, open oak woodland, wet rough acid grasslands. There are numerous records in Cornwall from woodland sites, e.g. Luckett in 1982 (Smith, 1997) and near Blisland in 1999 (Spalding, unpublished data). However, AS and RJW found Double Line in some numbers when surveying the Culm measure grasslands at Dunsdon in Devon (now a National Nature Reserve and a Devon Wildlife Trust reserve) (Spalding, 1989; Wolton, 2000) where the woodland areas were restricted to overgrown hedges between small open fields; as a consequence we decided that the moth may be more eclectic in its habitat requirements than formerly realised and may feed as larvae on plants growing on the woodland edge, perhaps taking advantage of the shelter provided. Subsequently, Double Line has been recorded on numerous Culm grassland sites in north and west Devon, often in considerable numbers. Indeed, in June it is sometimes the most numerous Noctuid caught in light traps, with up to 64 being caught in a single 15W actinic trap in one night. On Hollow Moor, a site in north-west Devon, 248 individuals were caught in six such traps on 1 July 2006 (RJW).

It can be difficult to determine the exact habitat association of a moth species unless that species is sedentary. Double Line is a large moth which flies well and so its presence throughout an extensive site may disguise a particular association with

part of that site, for example the hedgerows within the Culm grassland habitat. This article outlines some of the work carried out to define habitat associations for Double Line using light traps and larval searches, with information on the larval foodplants, much of it previously unpublished.

Habitats

Double Line is known to occur in sites where some of the following habitats are present:

- Woodland
  - dense woodland with rides and glades
  - open woodland

- scrub
  - wet willow *Salix* spp. scrub
  - scattered gorse *Ulex europaeus* scrub
  - bracken *Pteridium aquilinum* scrub

- Rhôs pasture or Culm grasslands (species rich purple moor-grass *Molinia caerulea* or rush *Juncus* species pastures.

At least some of these sites in south Wales and Cornwall are on abandoned mining areas (e.g. for coal or tin), where the sites have scrubbed over since industrial activity ceased.

Between 2000 and 2002, three sites (Richmond Park in south London, Goss Moor National Nature Reserve in Cornwall and Margam Country Park in south Wales) where Double Line was known to occur were investigated using rows of light traps set in a line to sample different habitat types. The results were analysed on the basis that if Double Line has no habitat preferences, we would expect to catch the same number at each trap station. The results of these surveys are summarised in Spalding & Parsons (2004) and indicate that Double Line is often associated with the following habitats:

- Open willow scrub with a rich grass flora (e.g., at Goss Moor)

- Bracken scrub with abundant Common Bent *Agrostis capillaris* or Creeping Soft-grass *Holcus mollis* (e.g., at Richmond Park and Margam Country Park)
  - within woodland
  - open areas

An additional light trap transect surveyed at St Clether (Spalding, unpublished data) suggested that bracken scrub within scattered European Gorse scrub was also an important habitat type. We have yet to run light trap transects within Culm grassland habitat.

These findings confirmed our view that the Double Line is a species of woodland edge, open scrub and wet grassland, where both temperature and humidity may be

higher than in more open areas. The association in some places with bracken is highlighted by the fact that the larvae are well camouflaged on dead bracken *Pteridium aquilinum*, being a similar colour and having dark lines which are reminiscent of the markings of a frond of dead bracken (Fig. 1). However, the larvae taken at Locks Park Farm in Devon did not have the cross-shaped dark dorsal markings described in Porter (1997) until just a day or two before pupation and all larvae are well camouflaged on dead oak leaves, dead grass etc. The larvae are not associated with bracken on Culm grassland sites.

Double Line tends to be absent from dense woodland, even when known larval foodplants are present. For example, in Goss Moor no Double Line were recorded in dense shady willow woodland with a sparse ground flora which included the known larval foodplant *Agrostis capillaris*. Likewise, trapping well within a native broadleaved woodland during the flight peak season resulted in few Double Line being caught while they were numerous in adjacent Culm grassland in north-west Devon (RJW, unpublished). This result is despite the fact that we would expect the light trap to attract more moths in a dark woodland as the contrast between the lamp and the surrounding woodland is greater than in open areas, and the temperature is likely to be higher especially on windy nights; this factor was illustrated by the catch in a trap set in a small patch of lime *Tilia* sp. trees over a sparse ground layer at Margam Country Park which attracted large numbers of Double Line from adjacent bracken scrub; this woodland was darker than the surrounding grassland and also 2°C warmer at 11.30pm. The absence of Double Line from large stands of dense woodland may be due to the sparseness and lack of vigour of the ground flora, especially grasses and sedges, or perhaps due to the cooler cumulative temperatures.

Double Line tend to be absent from open grassland well away from any trees or scrub, even where the foodplant grasses are abundant. Hence Double Line was largely absent from open deer-grazed grassland at Margam Country Park, with only three Double Line (out of 53 recorded on the site) being recorded despite the presence of the larval foodplant *Holcus mollis*. The results were even clearer for Richmond Park, where 105 Double Line were recorded in eight traps, yet none were recorded in the three traps set in open grassland (wet grassland with *Molinea caerulea* and acid grassland with *Agrostis capillaris*, both possible larval foodplants). This indicates that shelter (as provided by woodland, bracken or scattered scrub) is important for Double Line.

Larvae

Oviposition has been observed in Germany on the tip of a dead bushgrass *Calamagrostis epigejos* stalk that was bent at the top, the female inserting the strong ovipositor into the sheath surrounding the withered flower and depositing the eggs there (Steiner & Ebert, 1998). Larvae hatch in August and overwinter while small; there is then a period of active feeding at night in April and May before they pupate. The best time to find them is late April to early May when they are nearly full grown and are more easily seen. Typically they appear late in the evening, after 23.00 BST.

Larval foodplants are given in the literature as various grasses as well as wood-rush *Luzula* species Porter (1997), although Waring & Townsend (2003) suggest that the wood-rush records require confirmation. Grasses mentioned by various authors include Cock's-foot *Dactylis glomerata*, Common Bent *Agrostis capillaris*, Creeping Soft-grass *Holcus mollis* and Wood Meadow-grass *Poa nemoralis*, but its Culm grassland habitat suggested that other foodplants may be utilised. In Germany the larvae are recorded as feeding on *Carex brizoides* (not found in Britain), Hairy Sedge *Carex hirta* and doubtfully Greater Stitchwort *Stellaria holostea*, in addition to various grasses (Steiner & Ebert, 1998). This article summarises the results of investigations by the three authors over several years, with unpublished information on the larval foodplants.

Figure 1. Larva of *Mythimna turca* at rest on a dead frond of Bracken *Pteridium aquilinum.*

Larval searches have been made at night between late March and early May at a variety of sites in Devon and Cornwall (Table 1). Larvae were found in smaller numbers than expected considering the large numbers of adults found at some of the sites, and it may be that many of the larvae are deep down in the grass and therefore difficult to find or perhaps that they do not feed every night.

Larvae were recorded feeding on a wide range of foodplants (Table 1), including what we believe are the first records (by RJW and BPH) of feeding on Carnation Sedge *Carex panicea*, Glaucous Sedge *Carex flacca,* Purple Moor-grass *Molinia*

caerulea, Sheep's Fescue *Festuca ovina* and the bent grass *Agrostis vinealis*. The larvae can often be found resting on the ground (where they can be hard to see on the bare earth) or motionless on grass stems. They appear to be very slothful, and may remain in the same position for several hours without feeding. As a result, records of feeding activity have been difficult to obtain. In many cases, larvae were recorded resting on grass stems but not feeding; these positions were not considered as proof of feeding and only actual feeding records have been recorded. Larvae were recorded in five National Vegetation Classification (NVC) (Rodwell, 1998) grassland and mire communities often within willow woodland (W1), European gorse scrub (W23) and bracken scrub (W25) – U4 and MG5 (at Goss Moor & Breney Common), MG10 and M23 (Locks Park Farm) and M24c (Scadsbury Moor).

At Goss Moor, despite extensive searching in early May 2000, no larvae were found in open grassland (a mix of Purple Moor-grass mire (NVC M25) and extensive rush pasture (NVC M23), even though one of the recorded foodplants *Dactylis glomerata* was present and several adults had been recorded here in July 1999. This area was grazed by cattle at low density. In Devon, at Scadsbury Moor, a few larvae were found up to 15m away from the field edge, but most were taken in a sheltered area near the woodland edge where the afternoon sun catches a south facing slope, creating a sheltered sun spot. At Goss Moor, larvae were taken on a narrow track running east-west and open to the sun during the day; at St Clether and Treslea Down in Cornwall larvae were found at the edge of bracken and gorse scrub on warm south-facing slopes. However, at Breney Common in Cornwall larvae were taken on the north side of willow scrub and within a willow woodland glade.

Late instar larvae hide during the day. At Goss Moor on 10th May 2001, one larva was re-found in the morning concealed 5cm down in the moss layer below the grass stem on which it was feeding the previous night. At Scadsbury Moor, two larvae were re-found next morning, at about 10am, curled up on dead oak leaves under other leaves, with perhaps 7 cm of loose leaf letter above them, but not right on the cold, wet, ground (Fig. 2). It had been raining and the vegetation was wet, yet the larvae in their leaf shelters were dry. Neither tried to walk away when exposed to the light, and they were only a few cm away from the plants they had been eating. The larvae would doubtless get warm when the sun hit the location, perhaps helping their digestion.

Feeding in captivity

In captivity, RJW has recorded eggs being laid in batches of about 20 on false oat-grass *Arrhenatherum elatius* flower stalks c. 1.5mm in diameter so that they glued together two or three stems. The early instar larvae fed on the stems, leaves and flower heads of *Agrostis stolonifera*, apparently preferentially resting during the day on the dead leaves and flower heads of various grass species where they were well camouflaged. A wide range of grasses and sedges were taken by the larvae.

Table 1. Feeding records of *Mythimna turca* larvae at sites in Devon and Cornwall 2000 – 2006

Date	Site	Surveyors	Feeding	Description of vegetation community (see Rodwell, 1998)	Notes
2.5. 2000	Goss Moor, Cornwall	AS	2 feeding on *Agrostis capillaris*	U4 NVC sub-community b (*Holcus lanatus – Trifolium repens*) and MG5 within W1 Willow scrub	Three of the larvae were recorded at the edge of a narrow raised track leading through Willow woodland (NVC W1) and rush pasture and 1 n a clearing in willow woodland; 1 larva was seen resting on *Ranunculus repens*
13.5.2000	Goss Moor, Cornwall	AS	No feeding activity observed	U4 NVC sub-community b (*Holcus lanatus – Trifolium repens*) with 10% bare ground	1 seen curled up on grassy sward
5.5. 2001	Breney Common Cornwall	AS	No feeding activity observed		5 seen resting on *Agrostis capillaris*
6.5. 2001	Goss Moor, Cornwall	AS	3 feeding on *Agrostis capillaris*	U4 NVC sub-community b	2 seen resting on *Agrostis capillaris*; 1seen resting on *Anthoxanthum odoratum*; 1 resting on *Holcus lanatus*
9.5.2001	Goss Moor, Cornwall	AS	3 feeding on *Agrostis capillaris*	U4 NVC sub-community b	All at edge of track; 1 resting on *Holcus lanatus*
18.4.2002	St Clether Cornwall	AS	1 feeding on *Agrostis capillaris*	*Agrostis capillaris* dominated grassland within bracken scrub	Larva seen at 22.10.
24.4.2004	Scadsbury Moor, Devon	RJW, BPH	3 feeding on *Carex panicea*	NVC M24c (*Molinia caerulea – Cirsium dissectum* fen meadow, *Juncus acutiflorus* sub-community) close to birch-oak woodland	Two final instar larvae found by sweeping in open Rhôs pasture;12 larvae close to woodland edge
24-25.4.2004	Locks Park Farm, Devon	RJW, BPH	1 seen feeding on *Agrostis capillaris*	MG10 (*Holcus lanatus – Juncus effusus* grassland, typical sub-community)	Final instar larvae
19.3. 2005	Locks Park Farm, Devon	RJW	No feeding activity observed	MG10	Larva 25mm long resting on *Agrostis capillaris*; taken and had eaten a small amount of *A. capillaris* shoot by morning

Date	Site	Surveyors	Feeding	Description of vegetation community (see Rodwell, 1998)	Notes
26.3. 2005	Scadsbury Moor, Devon	RJW, BPH	2 feeding on *Carex panicea*	NVC M24c	1 larva resting on dead *Molinia* leaf; 1 larva on *Carex laevigata* leaf which had had its tip eaten off, then went onto *Carex panicea* and began to eat.
2.4. 2005	Locks Park Farm, Devon	RJW	No feeding activity observed MG10 typical sub-community	NVC M24c	One temporarily removed to check identification, and then replaced close to the rush clump where it was found. Half an hour later the larva had resumed the same position as before, apparently on exactly the same rush leaf!
23.4. 2005	Scadsbury Moor, Devon	RJW, BPH	1 feeding on *Carex flacca;* 2 on *Carex panicea*; 2 on *Festuca ovina*; 2 on *Agrostis stolonifera, 1 on A. vinealis, 1 on Molinia caerulea*	NVC M24c	One feeding on *Carex panicea* had also been eating a *Molinia caerulea* leaf and an *Agrostis vinealis* leaf within 1cm of its head
28.4. 2005	Locks Park Farm, Devon	RJW	No feeding activity observed	NVC M23 (*Juncus effusus/acutiflorus – Galium palustre* rush pasture)	Two larvae stationary on rush leaves
30.4. 2005	Breney Common, Cornwall	AS	1 seen feeding on *Anthoxanthum odoratum;* 1 on *Holcus lanatus*	U4 *Festuca ovina – Agrostis capillaris – Galium saxatile* community, sub-community U4b *(Holcus lanatus – Trifolium repens)*	
7.5.2005	Treslea Downs, Cornwall	AS	1 seen feeding on *Dactylis glomerata*	U4 type grassland	Resting on *Anthoxanthum odoratum* in short turf in lee of gorse bush

Two final instar larvae taken from the wild by RJW buried beneath the soil in their container by day, emerging by night to feed. They consumed quantities of *Carex panicea*, and also took Wood Sedge *Carex sylvatica*. Two larvae taken from Goss Moor were bred through on a range of grasses including Annual Meadow-grass *Poa annua, Dactylis glomerata* and Yorkshire Fog *Holcus lanatus*.

Adult behaviour

Double Line start flying early in the evening and come readily to light; for example at St Clether in Cornwall 18 Double Line were recorded to 80 watt MV lamp within 20 minutes between 22.50hrs to 23.10hrs on 12 July 2000. At a trap at Goss Moor on 29 June 2000 numbers were monitored throughout the night in order to investigate peak flight activity for the Double Line. New entrants to the trap had peaked by 01.15hrs; after this time most Double Line remained in the trap, with numbers varying from 16 to 19. Cumulative numbers recorded throughout the night were as follows (Spalding, 2001):

- 00.15hrs 4 Double Line
- 01.15hrs 16 Double Line
- 02.15hrs 17 Double Line
- 03.15hrs 16 Double Line
- 04.15hrs 19 Double Line

The adults have a well-developed haustellum and come to bait and possibly thistles (Steiner & Ebert, 1998). We have never seen Double Line nectaring even where there were abundant nectar plants available such as at Goss Moor (e.g. Marsh Thistle *Cirsium palustre*, Common Valerian *Valeriana officinalis*, Bramble *Rubus fruticosus* agg. and Honeysuckle *Lonicera periclymenum*). One Double Line was seen here flying high into an isolated oak tree, before resting high in the canopy; another was seen resting on Grey Willow *Salix cinerea* before flying off into the willow scrub.

The males appear to be more ready to come light. The sexes can be difficult to tell apart; males have a large tuft of brown hair on the hind tibia (Heath & Emmet, 1979). At Margam Country Park in 2002, ten out of the total catch (53) were females.

Management

Available evidence suggests that the Double line requires wet, sheltered, uneven grasslands, open scrub or woodland edge. Tussocky swards closely interspersed with areas of short turf would appear favoured, the underlying soil being moist at the surface between September and June at least. Sun-spots may be preferred, or at least habitat patches well sheltered from wind exposure by trees or scrub. The larvae appear to have a catholic taste in grasses and sedges and able to tolerate very wet conditions, perhaps in western Britain even preferring flushed surfaces provided there is at least some dry leaf litter in which they can rest when not feeding. (The preferred habitat at both Margam Country Park and Richmond Park appear to be

Figure 2. Larva of *Mythimna tarca* hiding by day within the litter layer near to the foodplant.

much drier than in the other sampled habitats.) It is the structure of the vegetation rather than its botanical composition that appears important. The feeding requirements of the adults remain unknown, although their strong flight and ability to move long distances suggest that these are unlikely to be critical.

We recommend that management should aim to:

- Restore or maintain moist soils, preferably with some waterlogged or seasonally flushed areas
- Create well-sheltered patches or glades of open grassland, fen or mire, with abundant short grasses and sedges. This may require breaking up dense scrub and bracken or thinning woodland edges and rides
- Establish a tussocky sward structure, e.g. of *Molina, Dactylus* or *Juncus effusus,* probably through light cattle grazing.
- Avoid close grazing sites and do not mow or burn preferred breeding areas within sites.
- Foster the development of a deep litter layer during the winter
- Encourage flowering of nectar-rich plants such as thistles.

Acknowledgements

Our thanks to the owners and managers of the sites where we have carried out field research, including Messrs Hooper (Dunsdon Farm), Messrs Williamson and Mr and Mrs Butt (Hollow Moor), Mr Cobbledick (Scadsbury Moor), Martin Davey (Goss Moor National Nature Reserve), Alison Lloyd (Margam Country Park), Simon Richards (Richmond Park) and Cornwall Wildlife Trust (Breney Common). Some of the work by AS was carried out for Butterfly Conservation and Cyngor Cefn Gwlad Cymru as part of the BAP programme (Spalding, 2000; 2001; 2002).

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The Pale-shouldered Cloud *Chloantha hyperici* (D. & S.) (Lep.: Noctuidae) in North London: Sixth British record

Whilst going through my garden moth trap catch in Wembley, North London (Middlesex: VC 21) on the morning of 23 May 2007 (thus, recorded as 22 May 2007) I was surprised to encounter a single example of the Pale-shouldered Cloud *Chloantha (= Actinotia) hyperici*. The identity was kindly confirmed by Colin Plant in whose collection the specimen, a male, now reposes.

Chloanthe hyperici exists in the Western Palaearctic as two subspecies which are though to have been separated during the last glacial period (Fibiger, M., 1990. *Noctuidae Europaeae* **1**: 103 – 104). The nominotypical *C. hyperici hyperici* (D.& S.) affects southern and central Europe, though absent from the northern seaboard, and extending eastwards into the southern Russian states; *Chloanthe hyperici svendseni* Fibiger forms an isolated population in the southern tip of Norway, Sweden and Finland and the northern tip of Denmark and is recognised, primarily, by the bluish tint of the adult moth. Colin has compared the Wembley specimen with his own European material and informs me that it is of the typical form *C. hyperici hyperici*.

Honey, M., (1997. *Atropos* **2**: 56 – 57) notes that the Pale-shouldered Cloud is apparently extending its range; the implication is that it is the southern subspecies *hyperici* that is expanding northwards and there is no apparent evidence that *svendseni* is moving southwards. It was recorded new to Belgium in 1987 (de Turck., A. 1988. *Phegea* **16**: 77 – 79) and it was first recorded in Britain at Dungeness, East Kent, on 20 August 1996 (Walker, D., 1997. *Atropos* **2**: 55 – 56). The second and third British records herald from Landguard Bird Observatory, East Suffolk on 6 May and 3 June 2003 (Odin, N., 2004. *Atropos* **20**: 58) and there were two further adults captured there on 20 and 26 July 2004 (Clancy, S., 2005. *Atropos* **24**: 28). There is a possibility that these 2004 examples were the progeny of the 2003 immigrants, though this is conjecture. According to Sean Clancy (personal communication, via Colin Plant) there are no further British examples reported until my own at Wembley, Middlesex on 22 May 2007.

It will be most interesting to see if further examples of the moth arrive in North London. The larval foodplant is St. John's-wort *Hypericum* (Fibiger, *op. cit.*) and it is, therefore entirely possible that the species might colonise ruderal habitat on post-industrial sites across North London and join our thriving populations of Toadflax Brocade *Calophasia lunula* which, according to the information held by Colin Plant as the Middlesex Moth Recorder, feed on Purple Toadflax in gardens and elsewhere. This latter species has been an annual 'regular' in my garden trap since 2004.

I am grateful to Colin Plant for confirmation of my identification of the moth, for his help in preparation of this Note and for permission to refer to the unpublished breeding records of Toadflax Brocade. I would also like to thank Sean Clancy for checking his database and confirming that I had not overlooked any additional British reports of the moth.— GEOFFREY GEIGER, 27 Victor Grove, Wembley, Middlesex HA0 4JJ (E-mail: axqz53@dsl.pipex.com).

EUROPEAN MOTH NIGHTS (EMN)

At this event, carried through once a year, experts on moths should on certain days at a place in Europe of their own choice – collect or record nocturnal moths and send the data obtained to EMN Headquarters. They should possibly collaborate with other colleagues and also include other persons interested into the field studies.

An international event with the following objectives

1) The basic goal is to establish and cultivate national and international contacts between researchers on nocturnal moths and other persons devoted to nature as well as to organize joint work.
2) A geographically wide-ranging snapshot should be created of the moths flying in the same period with special regards to their protection requirements and those of their habitats.
3) The data obtained and their evaluation will be made available for the public.

The events realized so far

1st European Moth Nights (12.-16. 8. 2004)

Number of participants: 154 from 21 countries. Number of localities: 159 from 23 countries. Number of recorded species of nocturnal moths (Macroheterocera): 850 (31% of the entire species of Europe). Results and evaluation: see internet sites. Also journal „Atalanta"(July 2005), 36 (1/2): S. 311-358 (DE – Markleuthen).

2nd European Moth Nights (30.6.-4. 7. 2005)

Number of participants: 400 from 23 countries. Number of localities: 380 from 24 countries. Number of recorded species of nocturnal moths (Macroheterocera): 975 (36% of the entire species of Europe). Results and evaluation: see internet sites.

3rd European Moth Nights (27.4.-1. 5. 2006)

Number of participants: 392 from 26 countries. Number of localities: 436 from 29 countries. Number of recorded species of nocturnal moths (Macroheterocera): 553 (20% of the entire species of Europe). Results and evaluation: see internet sites (from about 30.4.2007).

The next event

4th European Moth Nights (11.-15. 10. 2007)

Further events scheduled: 5.EMN: 24.-28. 7. 2008 - 6.EMN: 21.-25. 5. 2009 - 7.EMN: 9.-13. 9. 2010

Nocturnal moths collectors! Don't forget the dates, take part in the EMN, try to persuade other colleagues and also incorporate other persons interested in nature into the field studies.

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Internet sites (evaluations, information):
http://www.european-moth-nights.ch.vu
http://euromothnights.uw.hu
http://lepidoptera.fw.hu

(by Ladislaus REZBANYAI-RESER, translation : Harald SCHREIBER)

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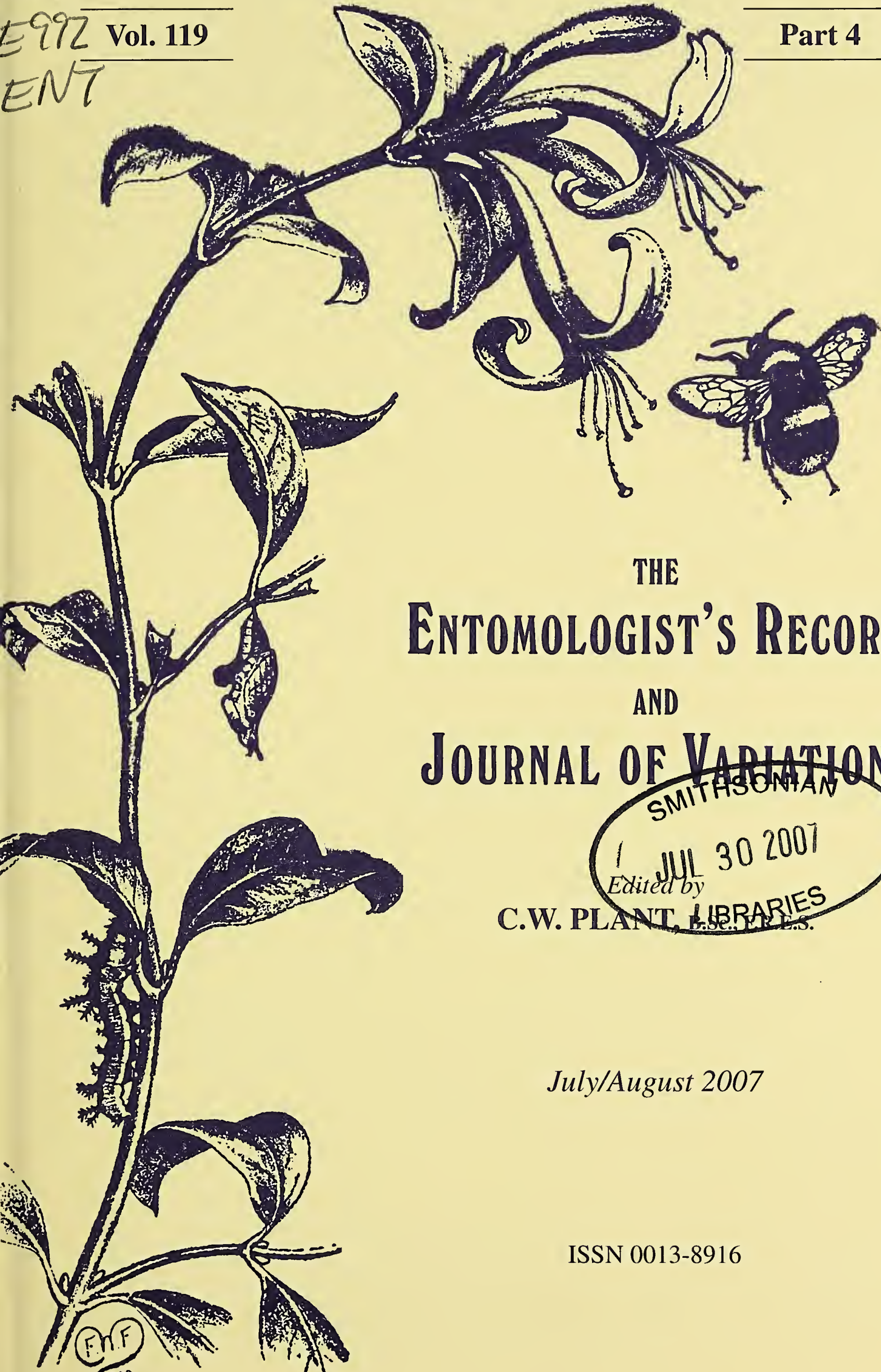

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THE IMMIGRATION OF LEPIDOPTERA TO THE BRITISH ISLES IN 2004

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Abstract

Formally accepted records of immigrant Lepidoptera occurring in the British Isles during the year 2004 are listed and discussed. For less frequently encountered species full information is given in Annex 1, presented in vice-county order, the individual localities then listed alphabetically for each VC. For the more regular immigrant species, annual summaries and a selection of the more important records are presented in Annex 2.

Introduction

Whilst it lacked the huge volume of migrants recorded the previous year, the 2004 season will long be remembered for the unparallelled winter immigration that occurred during the first half of February. The immigration centred on Dorset but its effects were felt far & wide with individuals of *Nomophila noctuella* (D. & S.) in Lancashire and *Agrotis ipsilon* (Hufn.) as far north as the Shetlands. The February immigration occurred in two waves, around February 4/5 & 10/11/12, the latter arrival being the more spectacular and including the scarcer immigrant species. The weather system charts for the early parts of both these periods are figured below, and clearly show the southerly jetstreams produced by depressions in the Atlantic and anticyclones across southern Europe. Although not visible in these charts, these jetstreams originated from the Azores and West African coast, as shown in Davey (2004), where this remarkable winter influx of Lepidoptera is discussed in more detail.

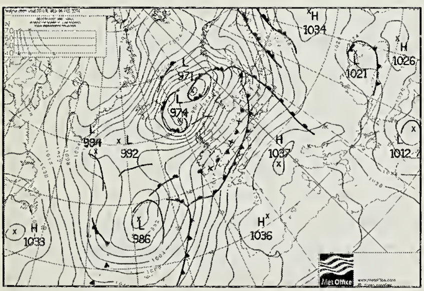

Figure 1. Weather system chart for 4.ii.04.

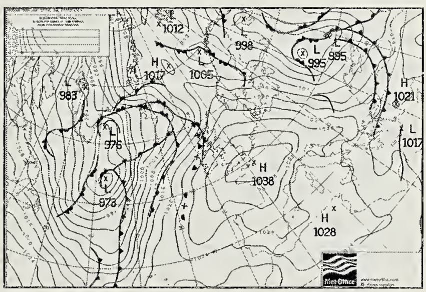

Figure 2. Weather system chart for 10.ii.04.

Record single night arrivals of *Euchromius ocellea* (Haw.) and *Spodoptera exigua* (Hb.) occurred on 11.2, and the wide range of additional immigrant species recorded during this period included significant numbers of *N. noctuella*, *Vanessa cardui* (L.), *A. ipsilon* and *Heliothis peltigera* (D. & S.). Smaller numbers of species such as *Rhodometra sacraria* (L.), *Orthonama obstipata* (Fab.), *Hyles livornica* (Esp.),

Mythimna loreyi (Dup.), *Helicoverpa armigera* (Hb.) and *Trichoplusia ni* (Hb.) were also recorded; as were a number of pale, immigrant examples of *Discestra trifolii* (Hufn.). Of the scarcer immigrants, two *Conistra erythrocephala* (D. & S.) were recorded on 12.2 & 13.2; a single *Heliothis nubigera* (H.– S.) was recorded on 13.2; a record total of nine *Tathorhynchus exsiccata* (Led.) occurred between 10.2 & 13.2; & no fewer than 31 *E. ocellea* were recorded between 11.2 & 16.2. An additional *T. exsiccata* occurred on Guernsey during this period, the first VC113 record.

A second significant migrant event of 2004 occurred in August and concerned an unprecedented single species arrival of the migrant tortricid *Cydia amplana* (Hb.). This was again centred on Dorset where huge numbers were recorded from several coastal sites, but also included the first Irish record, and at least six new vice-county records from southern England. Although there were also unusually high numbers of *Conobathra tumidana* (D. & S.) during August, numbers of other immigrant species were generally unexceptional during this period so it is likely the mass arrival of *C. amplana* was the result of dispersal from populations in southern Europe following an exceptionally successful breeding season.

There were a number of other significant highlights during the 2004 season and chief among these was a series of records of *Eublemma purpurina* (D. & S.) that involved at least nine (probably 11) individuals between 31.7 & 22.8. At the time these were believed to be the first British records, although a specimen from 2001 was subsequently identified (see Clancy & Skinner, 2007).

Two immigrant species were recorded as new to Britain in 2004: *Chiasmia aestimaria* (Hb.), two examples from VC15 in August & September; and *Catocala conjuncta* (Esp.), an example from VC25 in September. The first British records of *Dialectica scalariella* (Zell.) from VC15 and *Nola chlamitulalis* (Hb.) from VC18 were of less certain origin. A record number of *Conistra erythrocephala* (D. & S.) were recorded, largely as a result of an early November arrival; whilst an exceptional number of *Chrysodeixis chalcites* (Esp.) seen during a protracted period in eastern England included a number of inland records and a record as far north as VC66. There was also a record arrival of immigrant *Catocala sponsa* (L.) into southern England during August; and the second & third modern records of *Catocala electa* (View.) occurring late in the month in VC's 13 & 15 completed an exceptional season for immigrant catocalids.

Record annual totals of immigrant *Thaumetopoea processionea* (L.), *Trachea atriplicis* (L.), *Proxenus hospes* (Frey.) and *Acontia lucida* (Hufn.) occurred in 2004 with nine, eight, eight & six records respectively; whilst there were three records each of *Lacanobia splendens* (Hb.) and *Platyperigea kadenii* (Frey.) following their first British records in 2003 & 2002 respectively. The colonist species *Cryphia algae* (Fabr.) and *Noctua janthina* (D. & S.) appeared to consolidate their breeding status, although an element of fresh immigration was indicated by the received data, so all records are listed in Annex 1.

Other immigrant species of note recorded during the season included six *Haimbachia cicatricella* (Hb.), these including the first UK records outside VC15;

an immigrant example of *Maruca vitrata* (Fabr.); the third British record of *Herpetogramma licarsisalis* (Walk.); only the second probable immigrant example of *Euzophera bigella* (Zell.); the third & fourth modern British records of *Dendrolimus pini* (L.), including the first in Scotland; the second & third British records of *Cyclophora ruficiliaria* (H.-S.); the fourth & fifth British records of *Actinotia hyperici* (D. & S.) from the same locality as the previous two; and two examples of *Dysgonia algira* (L.) during August.

Of the more regular migrant species *Udea ferrugalis* (Hb.), *Macroglossum stellatarum* (L.), *Mythimna loreyi* (Dup.), and *Helicoverpa armigera* (Hb.) were seen in unusually high numbers; whilst *Rhodometra sacraria* (L.) would have had a poor showing without a large single night arrival into VC1 on 9.9. Records of *Acherontia atropos* (L.) were notably frequent and widely distributed, the majority of these of the larval stage.

Guidelines for contributors

To avoid unnecessary delays in publishing future reports, it would help greatly if contributors adhere to the following guidelines: data should include the vice-county, recorder, stage (if not an adult), number observed, and the date. For light-trap records list the date the trap was switched on, not the date it was inspected; this is a universally accepted convention to avoid the possible duplication of records.

There remains a noticeable shortage of records from more northern and inland sites submitted for the current report. Records of migrant species from such sites would be gratefully received for future reports, and the regional summaries and new categories of listed records for Annex 2 species have been introduced to take account of records of this nature. County recorders not already submitting migrant data for these annual reports are keenly requested to do so, even if their respective counties are not favourably positioned to receive arrivals. Migrant records from such northern & inland sites are often more significant in showing the range and scale of immigrations of species routinely recorded from more southern, coastal locations.

It should be noted that statistics relating to the total number and distribution of all records received/sourced of nocturnal Annex 2 species are now given, so please continue to submit records of all these species. It must also be stressed that it has become impossible to monitor the growing number of e-mail/website migrant forums and the posting of records on such sites will not necessarily result in their inclusion in future reports. It is therefore essential that migrant records are submitted to the relevant county recorder, published within the entomological press or sent directly to the report author.

County recorders, or those submitting large volumes of data are asked to sort their data by vice-county, species name, and then by date order. Contributions are particularly welcome in electronic format (MS Word or Excel etc.) to the author at the e-mail address given at the start of the report. Paper copies may also be submitted to the postal address over the page. Should readers be aware of any significant omissions or errors in this or earlier reports, these would also be welcomed for inclusion in future appendices.

Recent reports have been extended to include the more interesting records of adventives as these often help to establish the origin of other records or colonisations of the relevant species. Extralimital records of resident species that may be the result of immigration or internal vagrancy are also included in reports. Records of this nature are therefore also welcome for inclusion in future reports.

The following abbreviations have been adopted since the 2002 report. These remain unaltered and exclude any variation in status found on the Channel Islands (VC 113). However the categorisation of individual species is reviewed annually in the light of any recent/ongoing changes in status. A brief introductory statement has also been added to the accounts for a number of listed resident species in order to clarify the type of record that is included in these reports.

Abbreviations

[I] – Primary immigrant or the direct progeny of a primary immigrant. Where this is the only category given, believed to relate to a species that is unable to maintain a viable, self-sustaining resident population through a typical British winter.
[In] – Introduction or importation. A species artificially introduced into Britain by man. Can include synanthropic species that are only able to sustain breeding populations in Britain under conditions that do not occur naturally.
[MC] – Migrant Colonist. An immigrant species that has established extant, short-term breeding populations in Britain, but these believed to have been present for fewer than ten consecutive years.
[R] – Resident. A species with an established breeding population in Britain, this having been present for a minimum of ten successive years.
[FR] – Former Resident. A species that was formerly an established resident but has no known resident populations in Britain at the time of writing.
[V] – Vagrant/wanderer. A species recorded well away from its known British breeding range, but the record most likely to have been the result of internal, domestic dispersal.

Channel Islands (VC113) records are no longer included in the main species accounts due to their southerly position, locating them outside the biogeographical area of Great Britain and Ireland. This often leads to differing statuses of listed species within VC113 and occurrence patterns of immigrant species that are not comparable with records in Great Britain and Ireland. However, records of recent colonists and rare immigrants in VC113 can be precursors of arrivals in Britain, so significant VC113 records are given in Annex 3.

ANNEX 1: RECORDS OF SCARCER SPECIES IN 2004

TINEIDAE

0232 *Monopis monachella* **(Hb.) [R][V/I]**

Coastal records away from localised populations in VC25.

E. KENT [**15**] Kingsgate, 19.5 (Solly, 2005). E. SUFFOLK [**25**] Landguard Bird Observatory, 4.8 (Odin, 2005). E. NORFOLK [**27**] Eccles-on-Sea, 10.7 (Bowman, 2005).

GRACILLARIIDAE

311a *Dialectica scalariella* **(Zell.) [In/I?]**
E. KENT **[15]** Kingsdown, 27.9 (FS, in Agassiz, 2005). New to Britain.

Unlisted *Phyllocnistis citrella* **Stainton [In]**
E. GLOUCESTERSHIRE [33] Cheltenham, 24.12, vacated mine in a supermarket satsuma imported from Spain or Turkey (Homan, 2005). This is believed to be the first evidence of this species in Britain, although vacated mines have been found on several occasions since in imported citrus fruits (DJLA, pers. comm.).

YPONOMEUTIDAE

0424 *Yponomeuta evonymella* **(L.) [R][I/V]**
A widely recorded species, some of these thought likely to relate to migrants. A selection of submitted records most likely to relate to immigrant activity is given, though this is in no way a comprehensive summary.
S.E. YORKSHIRE **[61]** Spurn, 13.8 (Spence, 2005). ORKNEY ISLANDS **[111]** 15.8 (Gauld, 2005). SHETLAND ISLANDS **[112]** Eswick, 10.8, 14.8 (Anon., 2005a); Mid Walls, 10.8 (Anon., 2005a); Norwick, 10.8 (Anon., 2005a).

0428 *Yponomeuta rorrella* **(Hb.) [R][V/I]**
Coastal records of possible immigrant examples.
DORSET **[9]** Puddletown, 2.8 (HWH, in Sterling, 2005); West Bexington, 31.7, 2.8 (RE, in Sterling, 2005). MONMOUTHSHIRE **[35]** Dingestow, 30.7, 31.7 (SB). GLAMORGAN **[41]** Gorseinon, 20.7 (Gilmore, 2005). S.E. YORKSHIRE **[61]** Easington, 31.8 (M.J. Stoyle); Kilnsea, 11.8 – 31.8 (70, inc. peak of 19 on 14.8) (BRS); Spurn, 11.8, 12.8 (BRS).

0429 *Yponomeuta irrorrella* **(Hb.) [R][V/I]**
Coastal/extralimital records of possible immigrant examples.
E. SUSSEX **[14]** Icklesham, 4.8 (Langmaid & Young, 2005).

0473 *Acrolepiopsis assectella* **(Zell.) [R][I/V]**
Coastal/extralimital records of possible immigrant examples.
SHETLAND ISLANDS **[112]** Fair Isle, 15.6 (Langmaid & Young, 2005).

OECOPHORIDAE

0642a *Metalampra italica* **Baldizzone [I/In/MC?]**
S. DEVON [3] Plympton, 7.8 (Langmaid & Young, 2005). HERTFORDSHIRE [20] Welwyn, 28.7 (2), early August (1), first county records (Langmaid & Young, 2005).

ETHMIIDAE

0718 *Ethmia dodecea* **(Haw.) [R][I/V]**
Coastal records of possible immigrant examples.
DORSET **[9]** West Bexington, 14.6, 21.7, 22.7 (RE, in Sterling, 2005).

0719 *Ethmia quadrillella* **(Goeze) [R][I][V]**
Coastal records away from known populations.
KENT **[15]** Folkestone, 10.8 (AGJB, in Clancy 2005b); Kingsdown, 10.8 (NJ, in Clancy 2005b).

0720 *Ethmia bipunctella* **(Fabr.) [R][I][V]**
Records away from VC's **14, 15 & 25** where breeding populations are present and dispersal from these is the likely source of most VC records.
DORSET **[9]** Preston, 28.6 (RL, in Sterling, 2005). E. NORFOLK **[27]** Stoke Holy Cross, 29.7 (A. Musgrove).

GELECHIIDAE

0839 *Nothris congressariella* **(Bruand) [R][I/V]**
DORSET [9] Portland Bird Observatory, 3.9, first county record (MC, in Sterling, 2005).

COSMOPTERIGIDAE

896b *Cosmopterix pulchrimella* **Stt. [MC][I]**
W. CORNWALL **[1]** Church Cove, The Lizard, 28.10 (larval mines), first VC record (Parsons, 2005). E. CORNWALL [2] Fowey, 8.2 (larval mines) (J. Gregory); Portloe, 2.1 (larval mines), first county record (Parsons & Sterling, 2004). S. SOMERSET **[5]** Staplegrove, 3.11 (adult to light), first county record (JMc). DORSET **[9]** West Bay, Bridport, 17.1, 23.7 (larval mines) (Parsons & Sterling, 2004), 23.10 (larval mines) (MSP, in Sterling, 2005).

0897a ***Anatrachyntis badia*** **(Hodges) [In]**
E. KENT **[15]** Ashford, in imported supermarket pomegranate purchased 28.10, adult reared, first county record (SPC).

TORTRICIDAE

0955 ***Eupoecilia ambiguella*** **(Hb.) [R][V/I]**
Coastal/extralimital records of possible immigrant examples.
S.E. YORKSHIRE **[61]** Spurn, 7.8, first county record (Spence, 2005).

1157 ***Crocidosema plebejana*** **(Zel.) [R][I/V]**
Records associated with the February immigration; plus extralimital records.
W. CORNWALL **[1]** The Lizard, 12.2 (Davey, 2004). DORSET **[9]** Durlston, 5.2, 12.2 (Davey, 2004). GLAMORGAN **[41]** Llanishen, Cardiff, 17.6, first VC record (Gilmore, 2005). SHETLAND ISLANDS **[112]** Eswick, 31.10 (Anon., 2005a).

1181 ***Epiblema grandaevana*** **(Lien. & Zell.) [I][In][FR][MC?]**
W. SUFFOLK **[26]** Elveden Forest, 11.6, first VC record (Beaumont, 2005). LEICESTERSHIRE **[55]** Whetstone, 5.6 (Skevington, 2006). S.E. YORKSHIRE **[61]** Spurn, 5.6 (Spence, 2005).

1248 ***Grapholita molesta*** **(Busck) [In]**
E. NORFOLK **[27]** Norwich, 8.9, larva in peach imported from Spain (A. Beaumont, in Langmaid & Young, 2006).

1255a ***Cydia medicaginis*** **(Kuzn.) [I/V/R]**
E. SUFFOLK **[25]** Minsmere, 15.8 (per JBH); Orford Ness, 15.8 (MM per JBH); first county records.

1262 ***Cydia amplana*** **(Hb.) [I]**
Total no. reported: 1168
By vice-county: 1 (2), **2** (1), **3** (12), **5** (2), **6** (1), **9** (1097), **10** (8), **11** (28), **13** (1), **15** (11), **19** (1), **25** (2), **34** (1), **H20** (1).
W. CORNWALL **[1]** IOS: Longstone, St Mary's, 2.8 (Scott, 2005a); The Lizard, 8.8 (Tunmore, 2005). E. CORNWALL **[2]** St Germans, 3.8 (R.F. Champion per LACT). S. DEVON **[3]** Plympton, 2.8 (2), 7.8, 12.8 (RJH); Teignmouth, 9.8, 13.8 (plus six more during August) (RFM; Beaumont, 2005). S. SOMERSET **[5]** Ash Priors, 13.8 (2) (not 6.8 as given in Langmaid & Young, 2005), first VC record (D. Evans per MY). N. SOMERSET **[6]** Draycott, 6.8 (not 13.8 as given in Langmaid & Young, 2005), first county record (D. Evans per MY). DORSET **[9]** Dorchester, 4.8, 8.8 (3), 21.8 (2), 9.9 (JD); Durlston, 9.8 (7), 11.8 (2), 14.8 (3) (SN); East Lulworth, 11.8, 17.8 (2) (MSP); Portland, 6.8 (4) (JHC); Portland Bird Observatory, 2.8 (13), 3.8 (33), 4.8 (22), 5.8 (2), 6.8 (5), 8.8 (215), 9.8 (44), 10.8 (5), 11.8, 12.8 (2), 13.8, 14.8, 17.8 (3), 18.8 (6), 21.8, 24.8, 2.9, 29.9 (MC); Preston, 2.8 – 21.8 (216), inc. 166 on 8.8 (RL, MF, in Sterling, 2005); Puddletown, 2.8 – 23.8 (32), inc. 16 on 9.8 (HWH); Sherborne, 3.8 (DH^2); Upwey, 2.8 (9), 3.8 (25), 4.8 (2), 8.8 (140), 12.8 (7), 14.8 (11), 18.8 (30), 21.8 (3) (PH); Walditch, 2.8 (8), 8.8 (6), 16.8, 17.8, 18.8 (MSP); Warre Wood, 14.8 (2) (Sterling, 2005); West Bexington, 2.8 – 2.9 (45), inc. 20 on 9.8 (RE, in Sterling, 2005); Weymouth, 2.8 – 12.8 (71), inc 49 on 8.8 (Sterling, 2005); Wyke Regis, 3.8 – 18.8 (103), inc. 54 on 8.8 (DF, in Sterling, 2005). ISLE OF WIGHT **[10]** Totland, 9.8 (3), 10.8 (3), 12.8, 21.8 (SAK-J). S. HAMPSHIRE **[11]** Fareham, 10.8 (2), 17.8 (3), 18.8 (RD per TN); Funtley, 10.8 (3), 22.8 (MLO); Hengistbury Head, 2.8 (MJ per TN); Hurn, 29.7, 30.7, 1.8, 2.8, 10.8 (MJ per TN); Lymington, 8.8, 10.8 (2) (AJP, P. Durnell per TN); Pennington, 11.8, 18.8, 24.8 (R. Coomber per TN); Southsea, 8.8, 11.8, 12.8, 14.8 (JRL, IRT per TN); Stubbington, 10.8 (D. Houghton per TN); Wickham Common, 27.8 (RD per TN). W. SUSSEX **[13]** Ferring, 8.8 (THF). E. KENT **[15]** Dungeness, 12.8, 17.8, 23.8 (2) (DW, CR per SPC); Kingsdown, 6.8 (NJ); Kingsgate, 8.8 (2), 11.8 (Solly, 2005); Lydd, 10.8, 19.8 (KR per SPC); Pegwell, 20.8 (Solly, 2005); first county records. N. ESSEX **[19]** Dovercourt, 7.8, first county record (Langmaid & Young, 2005). E. SUFFOLK **[25]** Landguard, 11.8 (Langmaid & Young, 2005); Minsmere, 14.8 (Harvey, 2005); first county records. W. GLOUCESTERSHIRE **[34]** Pilning, 10.8, first county record (J. Martin, in Langmaid & Young, 2005). WICKLOW **[H20]** Ashford, 11.8, new to Ireland (AT).

PYRALIDAE

1289 ***Euchromius ocellea*** **(Haw.) [I]**
Total no. reported: 32
By vice-county: 1 (1), **9** (25), **10** (1), **11** (2), **13** (3).
W. CORNWALL **[1]** The Lizard, 12.2 (Tunmore, 2005). DORSET **[9]** Corfe Castle, 11.2 (J. Cox, in Davey, 2004); Durlston, 12.2 (3) (SN, in Davey, 2004); Highcliffe, 11.2 (B. Chapman, in Davey, 2004); Portland Bird Observatory, 11.2 (12), 12.2 (3), 16.2 (2) (MC); Puddletown, 16.9 (HWH); West Bexington, 11.2 (2) (RE). ISLE OF WIGHT **[10]** Totland, 11.2 (Knill-Jones, 2004). S. HAMPSHIRE

[11] Hengistbury Head, 11.2 (MJ per TN); Highcliffe, Christchurch, 11.2 (R. Chapman per TN). W. SUSSEX [13] Ferring-by-Sea, 11.2 (2) (THF); Kingsham, 11.2 (Love, 2005).

1291 ***Haimbachia cicatricella* (Hb.) [I][MC?]**
E. KENT [15] Lydd-on-Sea, 3.8 (MJT), 5.8 (KA). E. SUFFOLK [25] Orfordness, 14.7 (2), 31.7, 4.8, first county records (JA per AWP).

1300 ***Crambus pratella* (L.) [R][I/V]**
Records from southern England of possible immigrant examples.
DORSET [9] West Bexington, 12.6, first modern county record (RE, det. PHS, in Langmaid & Young, 2005; Eden, 2005), 13.6 (Eden, 2005); Wyke Regis, 19.6 (DF, det. PHS, in Sterling, 2005). BEDFORDSHIRE [30] Eaton Ford, 5.6 (AAL, gen. det. BD, in Langmaid & Young, 2005).

1314 ***Catoptria margaritella* (D. & S.) [R][I/V]**
Extralimital records of possible immigrant examples.
DORSET [9] Beaminster, 26.7 (PAD per SN); Powerstock, 23.7 (PAD per SN); Walditch, 23.7 (Parsons & Brereton, 2005); West Bexington, 6.8 (RE, in Sterling, 2005).

1322 ***Pediasia fascelinella* (Hb.) [R][I/V]**
Records of probable immigrant examples away from VC's **25** & **27**.
E. SUSSEX [14] Bexhill, 9.8, first county record (J. Scanes per CRP).
[A record published in Ferguson (2006) from Kingsdown [15] on 31.7 (NJ) is erroneous (NJ, pers. comm.).]

1325 ***Platytes alpinella* (Hb.) [R][I/V]**
Extralimital records of possible immigrant examples.
SHETLAND ISLANDS [112] Baltasound, 10.8 (Anon., 2005a).

1330 ***Donacaula mucronellus* (Zinck.) [R][I/V]**
Coastal records of possible immigrant examples.
E. KENT [15] Thanet, 7.6 (Ferguson, 2006).

1356a ***Evergestis limbata* (L.) [MC][V/I]**
An established resident in VC's **10**, **11**, **13** & **14**; records only listed outside these VC's, but most likely relate to range spread.
S. DEVON [3] Kingsteignton, 15.7, first county record (B. King, in McCormick, 2006). DORSET [9] Studland, 17.7 (CMM). E. KENT [15] Kingsdown, 14.6, 14.7 (3) (NJ).

1357 ***Evergestis extimalis* (Scop.) [R][I][V]**
An established resident in parts of southern England and East Anglia, recorded more sporadically elsewhere, and consequently records have not been included in 2004 from VC's **13**, **14**, **15**, **18**, **19**, **25**, **26**, **27** & **28**. The following records are from areas where resident populations are not currently known, and are likely to relate to immigrant or vagrant examples.
W. CORNWALL [1] IOS: Longstone, St Mary's, 15.9 (Scott, 2005a); Cury, The Lizard, 30.7 (FTJ). S. DEVON [3] Teignmouth, 5.8 (RFM); Uplyme, 13.8 (AK). DORSET [9] Durlston, 9.8, 2.9 (SN), 3.9 (APR, KT); Portland Bird Observatory, 9.8 (Cade, 2005a); Puddletown, 26.7 (HWH); Walditch, 15.6 (MSP); West Bexington, 30.6 (RE). ISLE OF WIGHT [10] Totland, 5.9, 9.9 (SAK-J). S. HAMPSHIRE [11] Portsmouth, 12.8 (RD per TN).

1368 ***Loxostege sticticalis* (L.) [I][FR]**
Total no. reported: 14
By vice-county: 1 (1), **3** (1), **9** (1), **14** (1), **15** (6), **27** (4).
W. CORNWALL [1] IOS: Longstone, St Mary's, 9.9 (Scott, 2005a). S. DEVON [3] Chudleigh, 4.6 (P. Hurst per RFM). DORSET [9] Portland Bird Observatory, 9.9 (Cade, 2005a). E. SUSSEX [14] Icklesham, 25.8 (Hunter, 2005). E. KENT [15] Dymchurch, 26.6, September (3) (JO); Greatstone, 23.8 (BB); Kingsgate, 25.8 (FS). E. NORFOLK [27] Horsey, 11.8 (3), by day (P. Heath per DH); Scole, 15.7 (M. Hall per DH).

1369 ***Uresiphita polygonalis* (D. & S.) [I]**
W. CORNWALL [1] IOS: Longstone, St Mary's, 15.8, 1.9 (Scott, 2005a). DORSET [9] Walditch, 24.8 (Parsons & Brereton, 2005); West Bexington, 18.8 (Eden, 2005).

1370 ***Sitochroa palealis* (D. & S.) [I/V][R]**
Coastal records away from known populations.
W. CORNWALL [1] IOS: Longstone, St Mary's, 1.8 (Scott, 2005a). DORSET [9] Upwey, 8.8 (PH); West Bexington, 28.7 (RE). W. SUSSEX [13] Selsey Peninsula, 1.8, 8.8 (Love, 2005). E. SUSSEX [14] Icklesham, 4.8 (Hunter, 2005). E. KENT [15] Dungeness area, July (2), August (2) (Clancy, 2005a). N. LINCOLNSHIRE [54] Gibraltar Point, 23.7 (Troake, 2005).

1374a ***Sclerocona acutellus* (Evers.) [In][I?]**
MIDDLESEX **[21]** Barnet, 9.6 (Terry, 2004). LEICESTERSHIRE **[55]** Market Bosworth, 13.6 (D. & M. Denton, in Langmaid & Young, 2005).

1375 ***Ostrinia nubilalis* (Hb.) [R][I][V]**
An established resident in south-east England, recently extending its range westward and northward, and consequently records have not been included in 2004 from VC's **10**, **11**, **13**, **14** & **15**. The following records are probably the result of internal range expansion, although fresh immigration from the continent is a possibility, particularly for the more coastal records.
W. CORNWALL **[1]** IOS: Longstone, St Mary's, 9.6, 16.6 (3), 21.7, 14.8, 4.9, 9.9 (3) (MAS). E. CORNWALL **[2]** Fowey, 9.9 (W. Scott). S. DEVON **[3]** Uplyme, 8.8, 10.9 (AK). N. SOMERSET **[6]** Berrow, 29.6 (per SN). DORSET **[9]** Dorchester, 9.9 (JD); Durlston, 29.7 (several) (PAD), 11.8 (SN); Portland Bird Observatory, 8.8 (Cade, 2005a); Upwey, 26.6, 27.7, 1.8 (2) (PH); West Bexington, August (3), September (1) (Eden, 2005). W. KENT **[16]** Greenwich, 7.6 (THF). SURREY **[17]** S. Croydon, 30.7 (GAC); Weybridge, 7.7 (ARM per GAC), 26.8 (ARM per SN). MIDDLESEX **[21]** Regent's Park, 17.7 (L. Winokur, in Beaumont, 2005). BERKSHIRE **[22]** Fernham, 8.6, 15.6, 17.6, 7.7, 28.7 (SN). E. SUFFOLK **[25]** Bawdsey, July (4) (Deans, 2005); Landguard Bird Observatory, 26.6 – 20.7 (4) (Odin, 2005). E. NORFOLK **[27]** Eccles-on-Sea, 29.6, 3.7, 6.7 (Bowman, 2005). BEDFORDSHIRE **[30]** Clophill, 29.6 (L. Hill).

1383 ***Psammotis pulveralis* (Hb.) [I]**
Total no. reported: 8
By vice-county: 1 (1), **3** (1), **13** (1), **14** (3), **15** (2).
W. CORNWALL **[1]** Maenporth, 3.8, first county record (Davis, 2005). S. DEVON **[3]** Uplyme, 8.8, first county record (AK). W. SUSSEX **[13]** Pagham, 31.7 (C. Glanfield per CRP). E. SUSSEX **[14]** Icklesham, 12.8, 25.8 [not 12.8 & 14.8 as given in Hunter, 2005] (IDH per CRP); Peacehaven, 4.8 (Pratt, 2005). E. KENT **[15]** Folkestone, 10.8 (T. Rouse per BFS); Ramsgate, 8.8 (PM, in Ferguson, 2006).

1401 ***Maruca vitrata* (Fabr.) [In][I]**
S. ESSEX **[18]** Bradwell-on-Sea, 12.8 (Dewick, 2005).

1402a ***Diasemia accalis* (Walk.) [In]**
W. KENT **[16]** Gravesend, 24.5, to light, new to Britain. A South East Asian species with an unknown life history (Agassiz, 2004).

1403 ***Diasemiopsis ramburialis* (Dup.) [I]**
ISLE OF WIGHT **[10]** Totland, 2.11 (Knill-Jones, 2005a). E. KENT **[15]** Lydd, 27.8 (KR). S. ESSEX **[18]** Bradwell-on-Sea, 22.8 (Dewick, 2005).

1403a ***Duponchella fovealis* (Zell.) [I][In][MC?]**
N. HAMPSHIRE **[12]** Lower Froyle, 5.11, indoors (B. & S. Clark per TN). E. KENT **[15]** Ramsgate, 23.3, indoors (Solly, 2005). E. SUFFOLK **[25]** Eye, 27.9, at light (PK per AWP). S.E. YORKSHIRE **[61]** Spurn, 15.8, in light-trap, first VC record (BRS, in Langmaid & Young, 2005). S.W. YORKSHIRE **[63]** West Melton, 5.3, indoors, first county record (HEB, in Langmaid & Young, 2005).

1406a ***Herpetogramma licarsisalis* (Walk.) [I]**
W. CORNWALL **[1]** Church Cove, The Lizard, 23.10 (Tunmore, 2005), third British record.

1408 ***Palpita vitrealis* (Rossi) [I]**
Total no. reported: 43
By vice-county: 1 (10), **3** (4), **4** (1), **6** (1), **9** (6), **10** (3), **11** (2), **13** (2), **15** (4), **16** (1), **18** (3), **19** (1), **25** (1), **27** (2), **58** (1), **71** (1).
W. CORNWALL **[1]** IOS: Longstone, St Mary's, 9.9 (5), 19.10, 21.10 (MAS); Maenporth, August (1), September (1) (Davis, 2005); The Lizard, November (1) (Tunmore, 2005). S. DEVON **[3]** Teignmouth, 7.11 (RFM); Uplyme, 29.8, 3.11 (AK); Yelverton, 4.9 (J. & C. Braven per RFM). N. DEVON **[4]** Lynton, 12.7 (JHC). N. SOMERSET **[6]** Timsbury, 30.10 (M. Bailey). DORSET **[9]** Durlston, 29.10, 2.11 (SN); Portland Bird Observatory, 2.11 (Cade, 2005a); West Bexington, 29.10, 6.11 (RE, in Sterling, 2005); Wyke Regis, 2.11 (DF, in Sterling, 2004). ISLE OF WIGHT **[10]** Totland, September (1), October (1) (Knill-Jones, 2005a), 11.11 (SAK-J). S. HAMPSHIRE **[11]** Pennington, 8.9 (R. Coomber); Sholing, 24.8 (A. Goodall). W. SUSSEX **[13]** Ferring, 19.10, 3.11 (THF). E. KENT **[15]** Littlestone, 20.9 (KR); Lydd, 23.10 (KR); Kingsdown, 31.10 (NJ); Kingsgate, 22.10 (FS). W. KENT **[16]** Beckenham, 19.9 (J. Nisbett per CWP). S. ESSEX **[18]** Bradwell-on-Sea, 19.10, 23.10, 29.10 (Dewick, 2005). N. ESSEX **[19]** St Osyth, 21.8 (RA^2 per BG). E. SUFFOLK **[25]** Reydon, 6.11 (AC per AWP). E. NORFOLK **[27]** Caston, 3.11 (GMH per DH); Eccles-on-Sea, 28.10 (Bowman, 2005). CHESHIRE **[58]** Heald Green, 5.9, first county record (B. Shaw, in Langmaid & Young, 2005). ISLE OF MAN **[71]** Dhoon Glen, 3.9 (LK per SN).

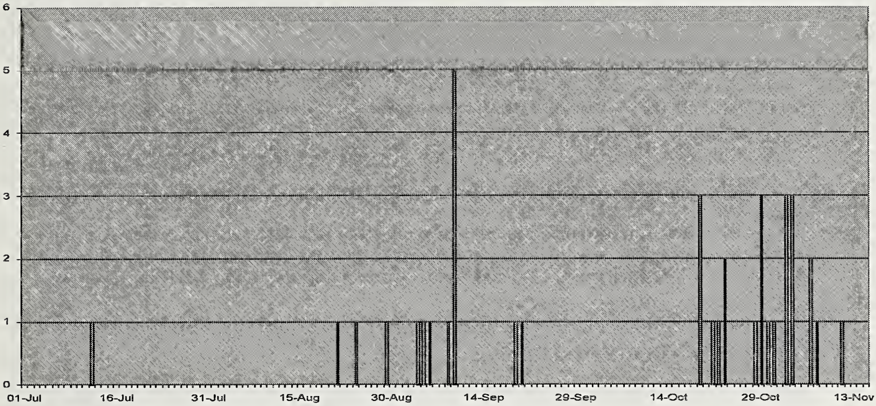

Fig. 3. Occurrence times of *Palpita vitrealis* during 2004 (dated records).

1416 ***Pyralis lienigialis* (Zell.) [R][V/I]**
CARMARTHENSHIRE [**44**] Bronwydd, 12.7, new to Wales (A. Johnson, in Langmaid & Young, 2005).

1430 ***Paralipsa gularis* (Zell.) [In]**
W. KENT [**16**] Gravesend, 15.10, 16.12 (RK, in Langmaid & Young, 2005). S. ESSEX [**18**] Westcliffe, undated (R. Payne per BG); Woodford Green, undated (R. Barfoot, BG).

1435 ***Conobathra tumidana* (D. & S.) [I]**
Total no. reported: 48
By vice-county: 9 (7), **11** (6), **13** (1), **14** (1), **15** (31), **25** (2).
DORSET [9] Durlston, 25.6 (JMc, in Sterling, 2004), 14.8 (CMM); Portland Bird Observatory, 2.8, 4.8, 8.8, 9.8 (MC); Preston, 29.7 (RL, in Sterling, 2004). S. HAMPSHIRE [**11**] Portchester, 8.8 (JS); Southsea, 1.8, 5.8, 7.8, 10.8 (JRL, IRT per TN); Stubbington, 10.8 (D. Houghton per TN). W. SUSSEX [**13**] Ferring, 4.8 (THF per CRP). E. SUSSEX [**14**] Peacehaven, 10.8, first VC record (Pratt, 2005). E. KENT [**15**] Dungeness, 28.7, 7.8, 9.8, 15.8 (DW, KR); Greatstone, 8.8, 9.8, 12.8, 23.8 (BB); Kingsdown, 6.8, 8.8, 13.8, 27.8 (NJ); Kingsgate, 9.8, 10.8 (2), 15.8 (FS); Littlestone, 28.7 (2), 11.8, 13.8 (KR); Lydd-on-Sea, 28.7, 2.8, 7.8, 8.8 (DB^2 per SPC); New Romney, 28.7 (KR); Pegwell, August (1) (FS). E. SUFFOLK [**25**] Bawdsey, 10.8 (2) (Deans, 2005).

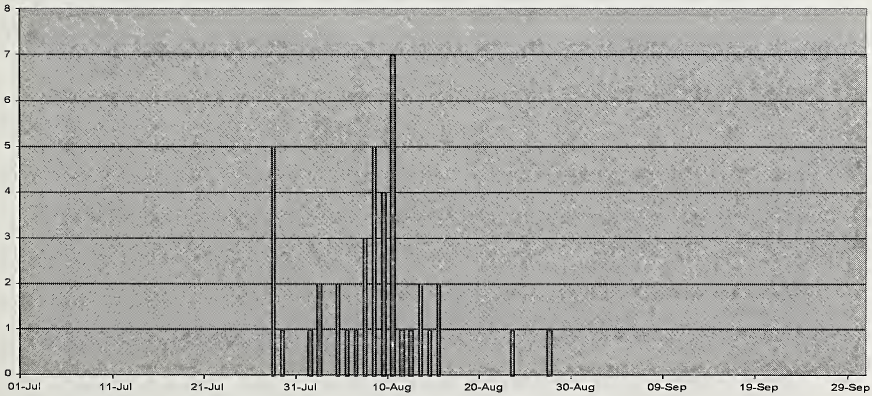

Fig. 4. Occurrence times of *Conobathra tumidana* during 2004 (dated records).

1438 ***Trachycera suavella*** **(Zinck.) [R][I/V]**
SHETLAND ISLANDS [**112**] Eswick, 9.8 (Pennington, 2005); first Scottish record was from the same site in 2003.

1447 ***Oncocera semirubella*** **(Scop.) [R][V/I]**
W. CORNWALL [**1**] The Lizard, 9.8, first county record (Tunmore, 2005).

1447 ***Sciota hostilis*** **(Steph.) [I][R]**
DORSET [**9**] Durlston, 16.7, first county record (SN, det. MFVC, in Langmaid & Young, 2005).
[Also an unconfirmed record from Thanet [**15**] on 10.6 (FS).]

1447a ***Sciota adelphella*** **(Fisch.) [R][V/I]**
A local resident in parts of VC**15**, the following records are away from known populations.
E. SUSSEX [**14**] Peacehaven, 21.7, first VC record (Pratt, 2005). E. KENT [**15**] Kingsdown, 20.7, 29.7 (NJ). W. KENT [**16**] Gravesend, 7.6, first VC record (DJLA, RK, in Beaumont, 2005).

1454b ***Dioryctria sylvestrella*** **(Ratz.) [MC][I][V]**
Now breeding locally in southern and south-east England, the following coastal records may relate to fresh immigration or internal vagrancy.
S. HAMPSHIRE [**11**] Fareham, 8.8 (KW per JRL); Keyhaven, 17.7 (DGG per TN); Pennington, 30.6, 10.7 (R. Coomber per TN). W. SUSSEX [**13**] West Wittering, 2.8 (Love, 2005). E. KENT [**15**] Dungeness, 21.7 (DW). W. KENT [**16**] Bedgebury, 8.6, first VC record (DJLA).

1467 ***Ancylosis oblitella*** **(Dup.) [R][I/V]**
DORSET [**9**] Puddletown, 11.8 (HWH, in Sterling, 2005). S. HAMPSHIRE [**11**] Southsea, 10.9 (IRT per TN). E. KENT [**15**] Dungeness, 15.8 (DW); Littlestone, 9.9 (KR).

1472 ***Euzophera bigella*** **(Zell.) [In][I?]**
W. CORNWALL [**1**] IOS: Longstone, St Mary's, 28.8 [not 26.8 as given in Scott, 2005a], first county record and only the second time this species has been taken 'at large' in Britain (MAS, gen. det. MFVC).

1477 ***Ephestia figulilella*** **(Gregs.) [In][I?]**
CAERNARVONSHIRE [**49**] Rhiwlas, 28.3, indoors, first county record (Langmaid & Young, 2006).

1478b ***Vitula biviella*** **(Zell.) [MC][V/I]**
A local resident in the southern part of VC**15**, the following records are away from known populations.
E. KENT [**15**] Kingsgate, 19.7 (FS). W. KENT [**16**] Gravesend, 29.6, 16.7 (DJLA, RK, in Beaumont, 2005).

PAPILIONIDAE

1539 ***Papilio machaon*** **(L.) Swallowtail [R][I][In?]**
The following records are all likely to relate to continental race *gorganus* (Fruhs.).
Total no. immigrants reported: 9
By vice-county: **9** (3), **11** (1), **15** (4), **16** (1).
DORSET [**9**] Ballard Down, Swanage, 15.6 (M. Wilkinson), 2.9 (M. Harford); Durlston, 5.9 (anon.). S. HAMPSHIRE [**11**] Southsea, 1.9 (S. Grange). E. KENT [**15**] Margate, 15.5 (S. Blaskett); Monkton, 15-20.8 (R. Stilwell); North Foreland, 25.5 (D. Worsfold); St Mary's Bay, 11.8 (R. Norman). W. KENT [**16**] Sevenoaks, 4.8 (Easterbrook, 2005).

1540 ***Iphiclides podalirius*** **(L.) Scarce Swallowtail [I][In]**
DORSET [**9**] Swanage, 3.9 (Cox, 2005).

PIERIDAE

1543 ***Colias hyale*** **(L.) Pale Clouded Yellow [I]**
E. KENT [**15**] Orlestone, 2.9 (A. Cooper per ME).
[Unconfirmed reports from Barcombe [**14**] during October (per CRP); & Lydden [**15**] on 8.6 (J. Webspe, in Easterbrook, 2005).

1549 ***Pieris brassicae*** **(L.) Large White**
High coastal counts, likely to be the result of primary immigration.
E. KENT [**15**] Dungeness, 23.7 (c.1000) (DW).

NYMPHALIDAE

1592 ***Vanessa virginiensis*** **(Drury) American Painted Lady [I]**
ISLE OF WIGHT [**10**] Totland, 6.8 (Knill-Jones, 2005b).

1596 *Aglais antiopa* **(L.) Camberwell Beauty [I][In?]**
N. SOMERSET **[6]** Nr. Bristol, 27.8 (anon.). WORCESTERSHIRE **[37]** Callow End, 15.7 (D. Wood). S.E. YORKSHIRE **[61]** Spurn, 15.8 (Spence, 2005). N.E. YORKSHIRE **[62]** York, 21.7 (anon.).

DANAIDAE

1630 *Danaus plexippus* **(L.) Monarch [I][In]**
Total no. reported: 7+
By vice-county: 1 (4), **4** (1), **11** (1), **15** (1+).
W. CORNWALL **[1]** IOS: Longstone, St Mary's, 28.9 (Scott, 2005a); IOS: St Mary's, 24.9, 25.9, 4.10 (Scott, 2005a). N. DEVON **[4]** Lundy, 5.6 (J. Saul). S. HAMPSHIRE **[11]** South Hayling, Hayling Island, 6.5 (Phillips, 2005). E. KENT **[15]** Broadstairs, 19.7 (Solly, 2005); Foreness, 20.7 (Solly, 2005); Pegwell, 22.7; Westwood, 25.7 (Solly, 2005). VC15 records may relate to the same individual.

LASIOCAMPIDAE

1639 *Dendrolimus pini* **(L.) Pine-tree Lappet [I]**
E. KENT **[15]** Littlestone, 2.8, the first county record (KR). E. INVERNESS-SHIRE **[96]** Leachkin, Inverness, 28.7, new to Scotland (D. Robinson per JW).

SATURNIIDAE

1643a *Saturnia pyri* **(D. & S.) Great Peacock [In]**
BEDFORDSHIRE **[30]** Wootton, 26.5 (S. & A. Hawkins per LJH).

Unlisted *Actias selene* **(Hb.) Indian Moon Moth [In]**
E. KENT **[15]** Maidstone, undated (autumn), at a lighted window (Ferguson, 2006).

DREPANIDAE

1649 *Drepana curvatula* **(Borkh.) Dusky Hook-tip [I]**
W. SUSSEX **[13]** Ferring, 2.8 (THF); Pagham, 9.8 (C. Glanfield per CRP). E. KENT **[15]** Kingsgate, 12.8 [not 8.8 as given in Solly, 2005 & elsewhere] (FS; Ferguson, 2006); New Romney, 11.8 (KR). S. ESSEX **[18]** Bradwell-on-Sea, 4.8 (Dewick, 2005).

GEOMETRIDAE

1678 *Cyclophora puppillaria* **(Hb.) Blair's Mocha [I]**
W. CORNWALL **[1]** IOS: Longstone, St Mary's, 21.6, 6.11, 20.11 (Scott, 2005a). W. SUSSEX **[13]** Ferring, 7.11 (THF per CRP).

1678a *Cyclophora ruficiliaria* **(H.-S.) Jersey Mocha [I]**
DORSET **[9]** Chickerell, Weymouth, 2.9 (PHS); Upwey, Weymouth, 21.8 (PH, det. PHS); the second and third British records.

1684 *Scopula nigropunctata* **(Hufn.) Sub-angled Wave [R][I][V]**
Records away from known populations in VC**15** that may relate to immigrants.
E. SUSSEX **[14]** Nr. Northiam, 2.8 (DB per CRP). E. KENT **[15]** Dungeness, 24.7 (DW)

1688 *Scopula rubiginata* **(Hufn.) Tawny Wave [R][I][V]**
Coastal records from VC**25** are included but most likely to be associated with resident populations.
E. KENT **[15]** Lydd-on-Sea, 29.7 (DB^2). E. SUFFOLK **[25]** Dunwich Heath, 21.8 (M. Cornish); Minsmere, 8.6, 16.6, 14.8 (Harvey, 2005).

1696 *Idaea ochrata* **(Scop.) Bright Wave [R][I/V]**
E. NORFOLK **[27]** Nr. Great Yarmouth, 13.7 (P. Heath per DH).

1699 *Idaea rusticata* **(D. & S.) Least Carpet [R][I][V]**
Coastal/extralimital records of possible immigrant examples.
W. CORNWALL **[1]** IOS: Longstone, St Mary's, 16.5, 7.6, 8.8 (Scott, 2005a); The Lizard, 9.8 (Tunmore, 2005). S. DEVON **[3]** Uplyme, 2.8 (AK).

1714 *Idaea degeneraria* **(Hb.) Portland Ribbon Wave [R][I/V]**
Coastal records away from VC**9** that may relate to immigrants, vagrants or undiscovered colonies.
W. CORNWALL **[1]** Buryas Bridge, 3.8 (Boggis, 2004a); IOS: Longstone, St Mary's, 4.9 (Scott, 2005a); IOS: St Agnes, 4.9 (Hicks, 2005); Maenporth, 24.5, 13.6, 31.8, 5.9 (7), 9.9 (Davis, 2005). S. DEVON **[3]** Starcross, 26/30.8 (AHD); West Hill, 9.9 (PJB per RFM).

1753 *Nebula salicata* **(Hb.) Striped Twin-spot Carpet [R][V/I]**
N. ESSEX **[19]** Felsted, 18.5, first VC record (G. Geen).

1771a ***Thera cupressata*** **(Geyer) Cypress Carpet [R][V/I]**
Records away from VC's **3**, **9**, **10**, **11**, **13** & **14** where resident populations are well established.
N. SOMERSET [**6**] Burnham-on-Sea, 31.10, 2.11 (A. Slade). E. KENT [**15**] Lydd, 2.11 (KR). W. KENT [**16**] Longfield, 19.6 (PPH, in Ferguson, 2006). S. ESSEX [**18**] Woodford Green, 6.11, first county record (R. Barfoot).

1855a ***Eupithecia ultimaria*** **Boisd. Channel Islands Pug [R][V/I]**
W. CORNWALL [**1**] IOS: Longstone, St Mary's, 4.8, first county record (Scott, 2005a).

1891 ***Macaria signaria*** **(Hb.) Dusky Peacock [I][MC]**
E. KENT [**15**] Barham, near Canterbury, 4.8 (SPC); Kingston, near Canterbury, 10.8 (R. Brown).

1894 ***Chiasmia clathrata*** **(L.) Latticed Heath [R][I/V]**
Large late summer/autumn arrivals, often particularly evident along the east coast, believed to relate immigration.
E. KENT [**15**] Kingsgate, 25.8 (258), 30.8 (183) (Solly, 2005); Pegwell, 30.8 (317) (Solly, 2005); Ramsgate, 30.8 (117) (Solly, 2005). S. ESSEX [**18**] Maldon, 19-24.8 (195, single night count) (per SN); Maldon area, 1-3.9 (516, single night count at two sites) (per SN). N. ESSEX [**19**] Copt Hall, 5.9 ('thousands' by day) (J. Firmin); Dovercourt, 20.7 (120) (per SN).

1894a ***Chiasmia aestimaria*** **(Hb.) Tamarisk Peacock [I]**
E. KENT [**15**] New Romney, 28.9 (SPC); Sholden, Deal, 16.8 (L. Hirst, in Harman, 2004). New to Britain.

1911 ***Ennomos autumnaria*** **(Werneb.) Large Thorn [R][I/V]**
Extralimital or coastal records away from known populations.
DERBYSHIRE [**57**] Shipley, 5.9, first county record (Viles & Wright, 2005). S.E. YORKSHIRE [**61**] Easington, 2.9 (M.J. Stoyle per BRS).

1918 ***Selenia lunularia*** **(Hb.) Lunar Thorn [R][I/V]**
Coastal records away from suitable habitat.
E. KENT [**15**] Lydd-on-Sea, 19.5 (RC), 28.5, 2.6 (DB^2); St Margaret's Bay, 6.8 (AM).

1958 ***Lomographa temerata*** **(D. & S.) Clouded Silver [R][I?]**
An example associated with the February immigration.
W. CORNWALL [**1**] Maenporth, 12.2 (Davis, 2005).

SPHINGIDAE

1973 ***Acherontia atropos*** **(L.) Death's-head Hawk-moth [I]**
Total no. reported: 25 adults, 44 larvae/pupae
Adults by vice-county: **1** (4), **2** (1), **9** (2), **10** (3), **11** (3), **13** (1), **15** (5), **19** (1), **21** (1), **41** (1), **60** (1), **112** (1), **H6** (1).
Larvae/pupae by vice-county: **3** (7), **4** (1), **6** (3), **11** (8), **13** (2), **14** (3), **15** (3), **17** (1), **18** (10), **19** (1), **20** (1), **21** (1), **31** (2), **55** (1).
W. CORNWALL [**1**] IOS: Longstone, St Mary's, 28.9, 29.9 (Scott, 2005a); Sancreed, 23.7 (Boggis, 2004a); St Ives, 6.7 (Boggis, 2004a). E. CORNWALL [**2**] Par, 14.6 (A. Hunkin per PHB). S. DEVON [**3**] Exeter, 14.9, 15.9, 23.9, three larvae (D. Davidson per RFM), 22.9, larva (anon. per RFM), 23.10, larva (M. Butler per RFM); Exminster Marshes, 18.9, larva (anon. per RFM), 26.9, larva (BPH). N. DEVON [**4**] Braunton Burrows, 29.8, larva (D. Carter per RFM). N. SOMERSET [**6**] Bath, late September, larva (per SN); Othery, early October, larva (M. Horton per SN); Weston-super-Mare, 10.9, larva (per MY). DORSET [**9**] Bournemouth, 2.10 (anon.); Weymouth, 4.10, found dead (per PHS). ISLE OF WIGHT [**10**] Nettlestone, September, undated (per SAK-J); Ryde, July, undated (per SAK-J); West Cowes, 7.7 (G. Long per TN). S. HAMPSHIRE [**11**] Bishopstoke, Eastleigh, 19.9, larva (C. Short per TN), 23.9 (adult) (P.E. Hutchins per TN); Millbrook, 6.7 (H. Stuart per TN); Ringwood, October, six larvae (S. Curson per TN); Southampton, 6.7 (H. Stuart per SN); Upper Kingston, 5.9, larva (per TN). W. SUSSEX [**13**] Hove, mid-November, found dead (D. How per CRP); Hunston, undated (autumn), two pupae (per CRP). E. SUSSEX [**14**] Forest Row, 28.9, three larvae (R. Fletcher per SN). E. KENT [**15**] Iwade, 9.9 (IC); Kingsgate, 16.9 (P. Wigley per IDF); Littlestone, 8.10 (Clancy, 2005a); Ospringe, 14.7 (D.W. Jenner per IDF); Sellindge, 1.11 (C. Davis via T. Orsbourne per IDF); Wye, 12.10, three larvae (P. Smytheman). SURREY [**17**] Wrecclesham, late September, pupa (C. Wiskin per SN). S. ESSEX [**18**] Bradwell-on-Sea, 16-24.8, nine larvae on *Euonymus europaeus* (Dewick, 2005); Tillingham, 30.8, larva (SJD). N. ESSEX [**19**] Great Bentley, September, larva (T. Sawkins, J. Firmin per BG); Harwich, 20.7 (P. Smith). HERTFORDSHIRE [**20**] Rothamsted Estate, 15.9, larva (R. Harrington per CWP). MIDDLESEX [**21**] Hampton, 12.9, larva (per MSP); Teddington, 1.8 (S. Gough per SN). HUNTINGDONSHIRE [**31**] Bury, October, pupa (M. Simpson per BD); Sapley, August, larva

(BD). GLAMORGAN [41] Kenfig NNR, 15.9 (Gilmore, 2005). LEICESTERSHIRE [55] Lyddington, 20.9, larva (P.F. Tomalin per APR). W. LANCASHIRE [60] Blackpool Airport, 17.9 (I. Chandler per SMP). SHETLAND ISLANDS [112] Sella Ness, 1.8, found dead (per MP).
WATERFORD [H6] Waterford City, 6.10 (M. O'Meara per IR).
[Records from Downderry [2], 6/20.7 (Boggis, 2004a; Nash, 2005), and Phillack, Hayle [1], 26.5 (2) (Boggis, 2004b), have been found to be erroneous (LACT, PHB, pers. comm.)].

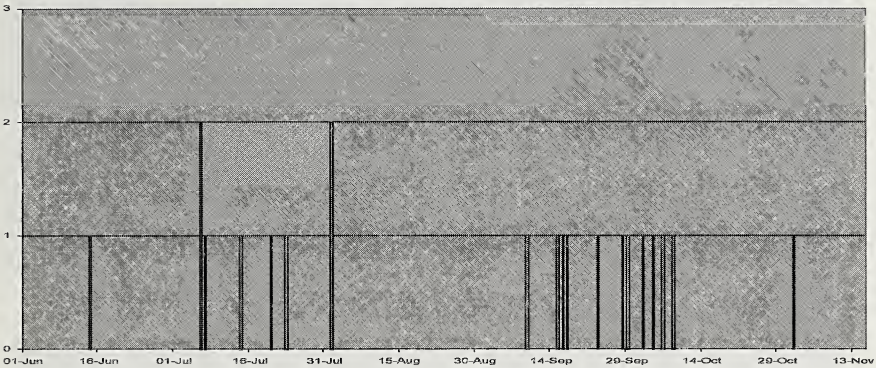

Fig. 5. Occurrence times of *Acherontia atropos* adults during 2004 (dated records).

1986 ***Hyles euphorbiae* (L.) Spurge Hawk-moth [I]**
E. KENT [15] Kingsdown, 9.6 (FS); Lydd-on-Sea, 7.8 (DB[2]).

1987 ***Hyles gallii* (Rott.) Bedstraw Hawk-moth [I][R]**
Total no. immigrant adults reported: 26
By vice-county: 9 (2), **10** (2), **11** (1), **15** (2), **28** (1), **29** (1), **31** (1), **54** (1), **58** (1), **61** (3), **85** (1), **93** (1), **111** (1), **112** (8).
DORSET [9] Puddletown, 6.8 (HWH); West Bexington, 14.6 (Eden, 2005). ISLE OF WIGHT [10] Whale Chin, 7.8 (2, by day) (Knill-Jones, 2005a). S. HAMPSHIRE [11] Bishopstoke, Eastleigh, 14.7 (P.W. Hooper per TN). E. KENT [15] Kingsdown, 9.6 (2) (FS). BERKSHIRE [22] Maidenhead, 13.8 (M.J. & L.J Finch per MH). W. NORFOLK [28] Burnham Overy, 10.7 (H. Brown per DH). CAMBRIDGESHIRE [29] Over, 8.6 (J. Dawson). HUNTINGDONSHIRE [31] Ramsey Heights, 17.6 (A. & S. Wallis per BD). N. LINCOLNSHIRE [54] Gibraltar Point, 25.7 (Troake, 2005). NOTTINGHAMSHIRE [56] Edwinstowe, 8.8, fully grown larva (Viles & Wright, 2005). CHESHIRE [58] Alsager, 8.8 (M. Dale per SF). S.E. YORKSHIRE [61] Cottingham, 1.8 (per TE); Spurn, 3.8, 7.8 (Spence, 2005). FIFESHIRE [85] Kinghorn, 7.8 (B. & S. Little). N. ABERDEENSHIRE [93] Oldmeldrum, 12.8 (Palmer *et al*, 2006). ORKNEY ISLANDS [111] 11.7, early October (Gauld, 2005). SHETLAND ISLANDS [112] Baltasound, 8.8 (per MP); Eswick, 8.8 (2) (per MP); Fetlar, 11.8 (Anon., 2005a); Foula, 1.8 (2) (D. Atherton); Virkie, 11.8 (2) (Anon., 2005a).

1990 ***Hyles livornica* (Esp.) Striped Hawk-moth [I]**
Total no. reported: 59
By vice-county: 1 (14), **3** (1), **6** (2), **9** (14), **10** (2), **13** (4), **15** (11), **18** (1), **20** (1), **25** (3), **41** (2), **53** (1), **H2** (1), **H12** (1), **H15** (1).
W. CORNWALL [1] Church Cove, The Lizard, 9.6 (MT); Cury, The Lizard, 7.6, 10.6, 11.6, 28.6 (FTJ); IOS: Longstone, St Mary's, 10.6 (2), 13.6, 14.6, 15.6 (2), 16.6 (2), 6.9 (MAS). S. DEVON [3] Tavistock, 9.6 (F. Slatter per RFM). N. SOMERSET [6] Berrow, 7.6 (J. Packer); Weston-super-Mare, 11.6 (K. Poole per MY). DORSET [9] Child Okeford, 2.8 (S. Barrett); Durlston, 5.2 (Davey, 2004), 15.6 (JHC); Portland Bird Observatory, 9.6, 14.6 (MC, in Davey, 2005); Puddletown, 12.2, 9.6, 10.6, 15.6 (HWH); Swanage, 8.6 (RC[2], in Davey, 2005); Upwey, 9.6 (PH); West Bexington, 11.2, 6.7 (RE, in Davey, 2005); Weymouth, 9.6 (PH). ISLE OF WIGHT [10] Binstead, undated (2) (B. Warne per TN). W. SUSSEX [13] Donnington, 9.6 (Love, 2005); Ferring, 10.6 (THF); Kingsham, 12.6 (SJP); Middleton-on-sea, 9.6 (Love, 2005). E. KENT [15] Kingsdown, 9.6 (2) (FS per IDF); Kingsgate, 13.6, 15.6 (FS); Pegwell, 16.6 (3), 17.6 (FS per IDF); Sandwich, 9.6, 11.6 (P.C. Heathcote per IDF); South Foreland, 14.6 (M. Love per IDF). S. ESSEX [18] Steeple, 15.6 (C. Harding per BG).

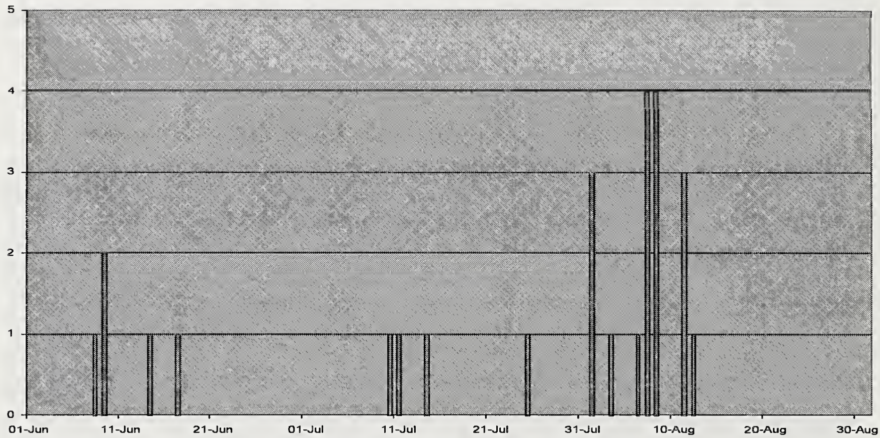

Fig. 6. Occurrence times of immigrant *Hyles gallii* adults during 2004 (dated records).

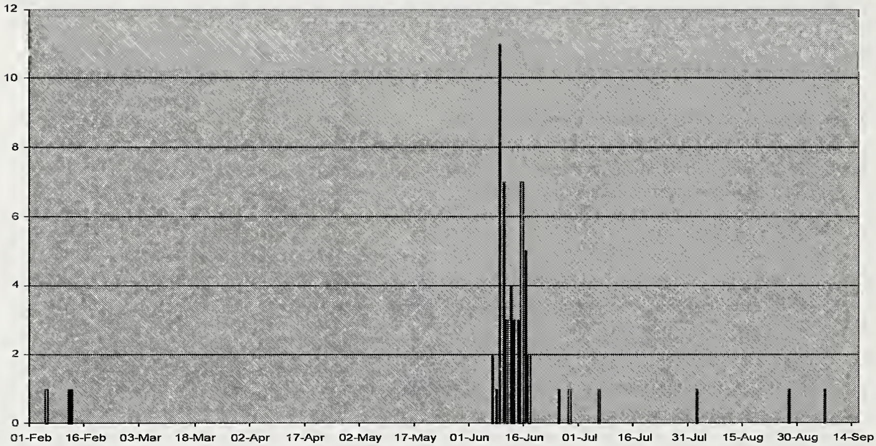

Fig. 7. Occurrence times of *Hyles livornica* during 2004 (dated records).

HERTFORDSHIRE [**20**] Bishops Stortford, 13.6 (CWP). E. SUFFOLK [**25**] Landguard Bird Observatory, 12.6, 17.6 (Odin, 2005); Mendlesham, 25.6 (S. Woolnough per AWP). GLAMORGAN [**41**] Cwm Ivy, Gower, 10.6, 15.6 (Gilmore, 2005). S. LINCOLNSHIRE [**53**] Langworth, nr. Lincoln, 10.6 (J. Knight). N. KERRY [**H2**] Ballyferiter, Tralee, 27.8 (J. Crosher per IR). WEXFORD [**H12**] Ravenswood, 12.6 (P. Strickland per IR). S.E. GALWAY [**H15**] Leagh South, Kinvarra, 12.6 (CH).

NOTODONTIDAE

2002 ***Notodonta tritophus*** **(D. & S.) Three-humped Prominent [I]**
E. KENT [**15**] New Romney, 4.8 (KR).

THAUMETOPOEIDAE

2022 ***Thaumetopoea processionea*** **(L.) Oak Processionary [I][In]**
Total no. immigrants reported: 9
By vice-county: 3 (1), **9** (2), **11** (2), **13** (2), **15** (1), **25** (1).
S. DEVON [**3**] Teignmouth, 9.8 (RFM). DORSET [**9**] Charmouth, 10.8 (PP); Swanage, 17.8 (RC^2). S. HAMPSHIRE [**11**] Fareham, 10.8 (KW); Portchester, 12.8 (JS). W. SUSSEX [**13**] Donnington, 18.8 (C.

Dewhurst per CRP); West Wittering, 10.8 (SJP per CRP). E. KENT [15] Lydd, 12.8 (CT). E. SUFFOLK [25] Landguard Bird Observatory, 9.8 (Odin, 2005).

LYMANTRIIDAE

2034 *Lymantria dispar* **(L.) Gypsy Moth [I][FR]**
W. SUSSEX [13] Donnington, 3.8 (C. Dewhurst per CRP); Chichester, 12.8 (MCP per CRP). E. SUFFOLK [25] Eye, 8.8 (PK).
WICKLOW [H20] Rathdrum, 8.8, new to Ireland (D. Dennison, L. Taylor per AT).

ARCTIIDAE

2041 *Pelosia muscerda* **(Hufn.) Dotted Footman [R][I]**
Records away from suitable habitat in VC27.
Total no. immigrants reported: 11
By vice-county: 9 (1), **13** (2), **14** (3), **15** (2), **18** (1), **25** (2).
DORSET [9] Walditch, 8.8 (Parsons & Brereton, 2005). W. SUSSEX [13] Walberton, 2.8, 3.8 (JTR per CRP). E. SUSSEX [14] Icklesham, 5.8 (2), 19.8 (Hunter, 2005). E. KENT [15] Greatstone, 8.8 (BB); Kingsgate, 14.8 (FS). S. ESSEX [18] Bradwell-on-Sea, 14.8 (Dewick, 2005). E. SUFFOLK [25] Ipswich, 29.7 (NS, in Pickles, 2005); Minsmere, 29.7 (Harvey, 2005).

2043 *Eilema sororcula* **(Hufn.) Orange Footman [R][V/I]**
Coastal or extralimital records away from known breeding populations.
E. KENT [15] Dungeness, 14.6 (DW); Kingsdown, 7.6, 12.6 (2) (Jarman, 2005). S.E. YORKSHIRE [61] Kilnsea, 16-18.5 (BRS).

2045 *Eilema caniola* **(Hb.) Hoary Footman [R][I/V]**
New breeding populations of this species have recently become established in southern & south-east England, so some of the following records may relate to locally bred examples.
DORSET [9] Durlston, 25.6, 16.7, 7.8, 9.8 (SN), 20.7 (6), 3.8 (2) (DCGB); West Bexington, 2.8, 9.8 (RE, in Davey, 2005). E. SUSSEX [14] Heathfield, 30.7, 1.8 (DRML per CRP); Sharpthorne, 7.8 (P. Clark per CRP). E. KENT [15] Lydd, 30.9 (per KR).

2046 *Eilema pygmaeola* **(Doubl.) Pigmy Footman [R][V/I]**
Records away from suitable habitat in VC's **15** & **27**.
S. HAMPSHIRE [11] Fareham, 22.7 (I. McPherson per TN). W. SUSSEX [13] Ferring, 4.8 (THF per CRP). E. SUSSEX [14] Icklesham, 30.7, 2.8, 6.8 (Hunter, 2005); Peacehaven, 2.8 (Pratt, 2005). E. SUFFOLK [25] Orfordness, 31.7 (per JBH).

2051 *Lithosia quadra* **(L.) Four-spotted Footman [R][I]**
Resident populations occur widely in south-west England and southern Ireland, these probably reinforced by immigration. However records from these areas have been excluded as their origins are generally indeterminable and likely to be mainly associated with local breeding populations.
DORSET [9] Abbotsbury, 17.8 (DCGB); Burton Bradstock, 17.8 (PHS); East Holme, 3.8 (J. Cox, in Davey, 2005); Portland Bird Observatory, 11.8 (Cade, 2005a); Preston, 12.8 (MF); Puddletown, 17.8 (HWH); Studland, 17.7 (CMM), 1.8 (DCGB); Tatton, 14.8 (2) (DF); Upwey, 14.8 (PH); West Bexington, 15.8 (6) (DCGB); Wimborne, 15.8 (D. & M. Godfrey, in Davey, 2005). ISLE OF WIGHT [10] Cranmore, 17.8 (I & C. Fletcher per SAK-J); Totland, 9.8, 10.8, 21.8 (SAK-J). S. HAMPSHIRE [11] Chandlers Ford, 14.8 (B. Goater per TN); Pennington Marshes, 9.8 (R. Wynn); Sholing, Southampton, 15.7 (ARC); Southsea, 14.8 (IRT per TN). W. SUSSEX [13] Pagham, 9.8 (C. Glanfield per CRP); Rusper, 12.8 (S. Bayley per CRP). SURREY [17] Buckland, 8.6 (CH). GLAMORGAN [41] Cwm Ivy, Gower, 28.7, 4.9 (Gilmore, 2005); Glen Moor, Gower, 9.8 (Gilmore, 2005); Pontypridd, 22.8 (Gilmore, 2005); Whiteford Lodge, Gower, 23.8 (Gilmore, 2005). MERIONETHSHIRE [48] Tan-y-bwlch, 27.7 (3) (DCGB per AG). ISLE OF MAN [71] Dhoon Glen, 26.7 (4), 27.7 (LK); Iona Laxey, 26.7 (2) (R. Cripps per LK); Peel, 26.7, 27.7 (D. Allen per LK).
FERMANAGH [H33] Crom, 17.7 (2) (see Appendix 1) (V. McLoughlin per BFS). DOWN [H38] Castleward, undated (per IR).

2067 *Euplagia quadripunctaria* **(Poda) Jersey Tiger [R][I/V]**
Records away from known resident populations in VC's **2**, **3**, **9** & **10**.
W. CORNWALL [1] IOS: Longstone, St Mary's, 11.8, 16.8 (Scott, 2005a); Maenporth, 18.8 (Davis, 2005). DORSET [9] Durlston, 14.8 (SN). S. HAMPSHIRE [11] Funtley, 10.8 (MLO). W. SUSSEX [13] Ferring, 8.8 (THF). E. KENT [15] Dover, 17.8 (M. Sykes per IDF); Dungeness, 9.8 (D. Bunny per DW); Lydd, 8.8, 10.8, 15.8 (CT, KR); Hythe, 10.8 (I. Roberts); Folkestone, 10.8 (AGJB); New Romney, 8.8, 12.8 (KR). SURREY [17] Streatham, 11.8 (M. Trasenster). E. SUFFOLK [25] Westleton, 5.8, first county record (MJD, R. Drew).

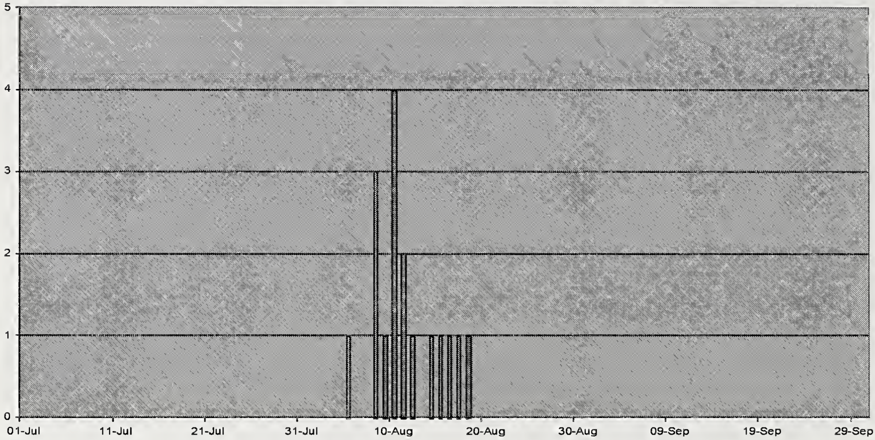

Fig. 8. Occurrence times of extralimital *Euplagia quadripunctaria* during 2004 (dated records).

2068 ***Callimorpha dominula*** **(L.) Scarlet Tiger [R][I/V]**
Coastal records away from known resident populations.
E. KENT [**15**] Sandwich, 9.7 (PPH, in Ferguson, 2006).

NOLIDAE

2076 ***Meganola albula*** **(D. & S.) Kent Black Arches [R][V/I]**
Coastal, extralimital records, most likely to relate to internal dispersal.
W. CORNWALL [**1**] Maenporth, 15.7 (Davis, 2005).

2079 ***Nola aerugula*** **(Hb.) Scarce Black Arches [I]**
E. KENT [**15**] Dymchurch, 27.6, 29.7 (JO, in Pickles, 2005). E. SUFFOLK [**25**] Bawdsey, 29.7 (Deans, 2005); Landguard, 21.7 (Odin, 2005).

2079a ***Nola chlamitulalis*** **(Hb.) Jersey Black Arches [I/In?]**
S. ESSEX [**18**] Epping Forest, 5.6, new to Britain (TG per BG).

NOCTUIDAE

2094 ***Agrotis crassa*** **(Hb.) Great Dart [I][FR]**
S. DEVON [**3**] Uplyme, 8.8, first county record (AK). DORSET [**9**] Portland Bird Observatory, 12.8, 17.8 (Cade, 2005a); West Bexington, 9.8 (Eden, 2005); Wyke Regis, 13.8, 17.8 (DF).

2102a ***Ochropleura leucogaster*** **(Frey.) Radford's Flame Shoulder [I]**
W. CORNWALL [**1**] IOS: Longstone, St Mary's, 1-4.11 (Scott, 2005a). DORSET [**9**] Portland Bird Observatory, 11.11 (Cade, 2005a).

2105 ***Rhyacia simulans*** **(Hb.) Dotted Rustic [R][I]**
SHETLAND ISLANDS [**112**] Fair Isle, 4.9, a pale immigrant example, the first VC record in over fifty years (P. Thomson, in Anon., 2005a).

2107 ***Noctua pronuba*** **(L.) Large Yellow Underwing [R][I]**
Significant coastal influxes likely to indicate large immigrations.
E. KENT [**15**] Kingsdown, 24.7 (400) (FS); Kingsgate, 15.7 (371), 20.7 (212) (FS); Lydd, 23.7 (180) (KR). SHETLAND ISLANDS [**112**] Eswick, 25.8 (251) (Anon., 2005a); Unst, 10.9 (98) (Anon., 2005a).

2111a ***Noctua janthina*** **(D. & S.) Langmaid's Yellow Underwing [I][MC]**
Certainly breeding in VC**15** and probably elsewhere, all records are included for interest.
DORSET [**9**] Durlston, 16.7, 28.7 (SN), 31.7, 3.8 (2), 4.8 (12) (DCGB); Portland Bird Observatory, 16.7, 17.7, 21.7, 22.7, 3.8, 4.8, 5.8, 10.8, 5.9, 7.9 (MC); Studland, 4.8 (DCGB); West Bexington, 4.7, 5.9, 6.9, 10.9 (Eden, 2005). S. HAMPSHIRE [**11**] Portchester, 8.8 (JS); Southsea, 22.7 (JRL per TN). W. SUSSEX [**13**] West Wittering, 6.8, 8.8, 13.8 (SJP per CRP). E. SUSSEX [**14**] Icklesham, 2.8 (3), 9.8

(2) (Hunter, 2005). E. KENT [**15**] Dungeness area, 3.7 – 11.8, with monthly totals of July (24), August (42) (per SPC); Folkestone, 11.8 (Pickles, 2005); Kingsdown area, 13.7 – 11.8, with monthly totals of July (6), August (14) (Jarman, 2005); Isle of Thanet, July (1), August (5) (Solly, 2005). E. SUFFOLK [**25**] Landguard Bird Observatory, 7.8 (Odin, 2005); Rendham, 15.7 (MJD); first county records.

2137 *Eurois occulta* **(L.) Great Brocade [I][R]**

The following records are all thought to relate to the pale immigrant form.

Total no. immigrants reported: 74

By vice-county: 18 (1), **19** (1), **26** (1), **27** (4), **59** (1), **60** (1), **61** (7), **62** (4), **63** (1), **67** (1), **71** (2), **89** (1), **93** (2), **94** (2), **111** (8), **112** (37).

S. ESSEX [**18**] Bradwell-on-Sea, 16.8 (Dewick, 2005). N. ESSEX [**19**] Dunmow, 16.8 (D. Perry per BG). W. SUFFOLK [**26**] King's Forest, 14.8 (AWP). E. NORFOLK [**27**] Scole, 12.8, 13.8, 14.8 (M. Hall per DH); Weybourne, 4.8 (M. Preston per DH). S. LANCASHIRE [**59**] Pennington, 14.8 (PP per SMP). W. LANCASHIRE [**60**] Yealand Conyers, 22.8 (B. Hancock per SMP). S.E. YORKSHIRE [**61**] Easington, 5.8, 13.8 (M.J. Stoyle per BRS); Filey, 8.8 (per TE); Kilnsea, 6.8 (BRS); Muston, 14.8 (P.Q. Winter per CF); Rudston, 5.8 (per CF); Spurn, 8.8 (BRS). N.E. YORKSHIRE [**62**] Guisborough, 6.8 (2) (D. Money, P.W. Forster per CF); Saltburn-by-the-Sea, 5.8 (2) (D. Money). S.W. YORKSHIRE [**63**] West Melton, nr. Rotherham, 6.8 (HEB per CF). S. NORTHUMBERLAND [**67**] Tynemouth, 4.8 (TT). ISLE OF MAN [**71**] Dhoon Glen, 13.8, 15.8 (LK). E. PERTHSHIRE [**89**] Kindrogan, near Pitlochry, 17.8 (PW). N. ABERDEENSHIRE [**93**] Auchnagatt, 8.8, 10.8 (C. Harlow). BANFFSHIRE [**94**] Ordiquhill, 16.7, 17.8 (RL^3). ORKNEY ISLANDS [**111**] 4-16.8 (8) (Gauld, 2005). SHETLAND ISLANDS [**112**] Bressay, 3.8 (4), 4.8 (2) (per MP); Burrafirth, 5.8, 25.8 (per MP); Eswick, 3.8, 4.8 (6), 9.8, 10.8 (4) (per MP), 23.8, 28.8 (TR); Foula, 4.8, 6.8 (per MP); North Nesting, 6.8 (per MP); Norwick, 4.8 (per MP); Ocraquoy, 6.8 (per MP); Toft, 31.7, 6.8 (per MP); Virkie, 31.7, 1.8, 6.8, 7.8, 29.8 (per MP); Walls, 5.8, 6.8 (2) (per MP).

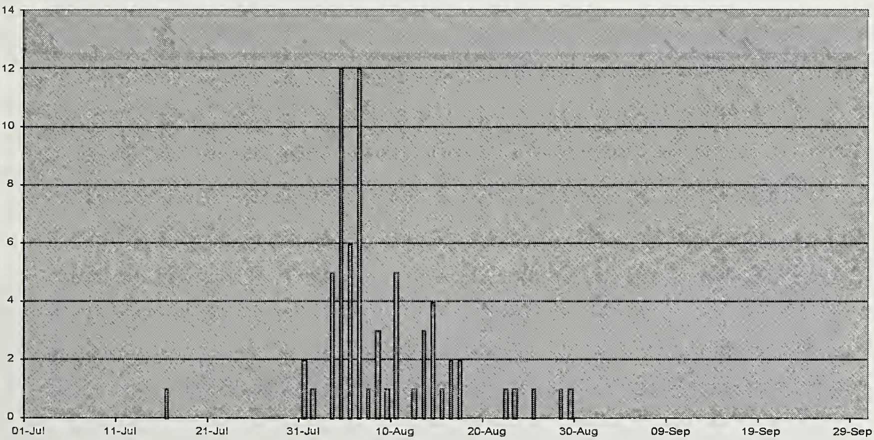

Fig. 9. Occurrence times of immigrant *Eurois occulta* during 2004 (dated records).

2145 *Discestra trifolii* **(Hufn.) Nutmeg [R][I/V]**

Records of immigrant, pale examples recorded during the February immigration; plus extralimital records.

W. CORNWALL [**1**] IOS: Longstone, St Mary's, 4.2, 5.2 (2), 9.2, 10.2, 12.2, 14.2 (2), 16.2 (MAS); The Lizard, 12.2 (Tunmore, 2005). DORSET [**9**] Corfe Castle, 11.2 (Davey, 2004); Kingscombe, 11.2 (Davey, 2004); Portland Bird Observatory, 11.2 (5), 13.2 (MC); Preston, 13.2 (2) (MF); West Bexington, 10.2, 11.2 (4), 13.2, 14.2, 16.2 (Davey, 2004). E. KENT [**15**] Kingsgate, 14.2 (FS). SHETLAND ISLANDS [**112**] Bressay, 8.8 (Anon., 2005a); Burrafirth, 9.8, 14.8 (3) (Anon., 2005a); Eswick, 9.8, 10.8 (3) (Anon., 2005a); Foula, 8.8, 10.8 (Anon., 2005a); Mid Walls, 6.8 (Anon., 2005a); Unst, 10.8 (3) (Anon., 2005a).

WEXFORD [**H12**] Ballyteigue, 2.9 (V. McLoughlin per BFS).

2160a ***Lacanobia splendens* (Hb.) Splendid Brocade [I]**
W. CORNWALL [1] Maenporth, 10.6 (Davis, 2005). DORSET [9] Studland, 20.7 (DCGB). SURREY [14] Capel, 29.6, first county record (Fraser, 2004).

2183 ***Orthosia miniosa* (D. & S.) Blossom Underwing [R][I/V]**
Coastal or extralimital records that may relate to immigrants.
S. HAMPSHIRE [11] Portchester, 14.4 (JS). E. KENT [15] Kingsgate, 1.4 (Solly, 2005). E. NORFOLK [27] Stoke Holy Cross, 2.4 (A. Musgrove per DH).

2194 ***Mythimna albipuncta* (D. & S.) White-point [R][I/V]**
An established resident within the southern and eastern seaboard counties between VC's **9** & **25**, and records are only listed from outside this area.
W. CORNWALL [1] IOS: Longstone, St Mary's, 17.6 (3), 23.7, 3.9 (2), 5.9, 9.9 (MAS). S. DEVON [3] Abbotskerswell, 6.9 (BPH); Hennock, 31.7 (B&LB per RFM); Salcombe, August (A. Trout per RFM); Tytherleigh, 22.8 (AJ per RFM); Uplyme, 3.6, August (3), September (6), 29.10, 1.11, 2.11, 3.11, 6.11 (AK); Wembury, 28.8 (P. Stubbs); West Hill, 6.9 (PJB per RFM). S. SOMERSET [5] Merriott, 26.8, 5.9, 22.9 (R. Clatworthy per MY); Norton sub Hamdon, 18.8 (IM per MY). N. HAMPSHIRE [12] Greywell, 19.9 (P. Boswell); Sherborne St John, 8.9 (NM). SURREY [17] Weybridge, 16.6 (ARM per GAC); Woking, 28.5 (M. Waller per SN). E. BERKSHIRE [22] Wash Common, 27.6, 17.7 (N. Asher per MH). NORFOLK [27] Attleborough, 12.8 (LB-L); Barnham Broom, 18.8 (J. & J. Geeson per DH); Eccles-on-Sea, 27.8, 28.8 (2), 14.9 (NB per DH); Honing, 17.8 (P. Heath per DH); Scole, 29.5, 4.6, 6.6, August (5), September (7) (M. Hall per DH); Trowse, 19.5 (J. Sutton per DH); Winterton, 15.8 (2) (per DH). W. GLOUCESTERSHIRE [34] Culkerton, 24.6 (M. Oates per RG). S.E. YORKSHIRE [61] Kilnsea, 14.6, 15.8, 16.8, 18.8, 19.8, 21.8, 25.8 (PAC per CF), 13.8, 17.8 (BRS); Muston, 21.10 (P.Q. Winter per CF); Spurn, 10.8, 13.8 (2) (BRS).

2202 ***Mythimna l-album* (L.) L-album Wainscot [R][I/V]**
An established resident within the southern seaboard counties between VC's **1** & **25**, and records are only listed from outside this area.
W. KENT [16] Beckenham, 19.9 (J. Nisbett per CWP).

2208 ***Mythimna loreyi* (Dup.) Cosmopolitan [I]**
Total no. reported: **62**
By vice-county: **1** (23), **2** (1), **3** (1), **9** (23), **10** (5), **12** (1), **13** (1), **14** (2), **15** (2), **16** (1), **34** (1), **45** (1).
W. CORNWALL [1] Buryas Bridge, 24.9; Cury, The Lizard, 7.11 (FTJ); IOS: Longstone, St Mary's, 12.2, 27.6 (2), 8.8, 7.9 (2), 8.9, 9.9, 21.9, 10.10 (MAS); The Lizard, 5.2, 12.2, 26.9, 26.10, 5.11, 7.11 (4), 8.11, 22.11 (MT) [the nine records shown for December in Tunmore (2005) were a misprint]. E. CORNWALL [2] Fowey, 30.10 (W. Scott). S. DEVON [3] Branscombe Mouth, 30.10 (S. Hatch per RFM). DORSET [9] East Lulworth, 17.11 (MSP); Portland Bird Observatory, 13.2, 31.8, 30.10 (3), 1.11

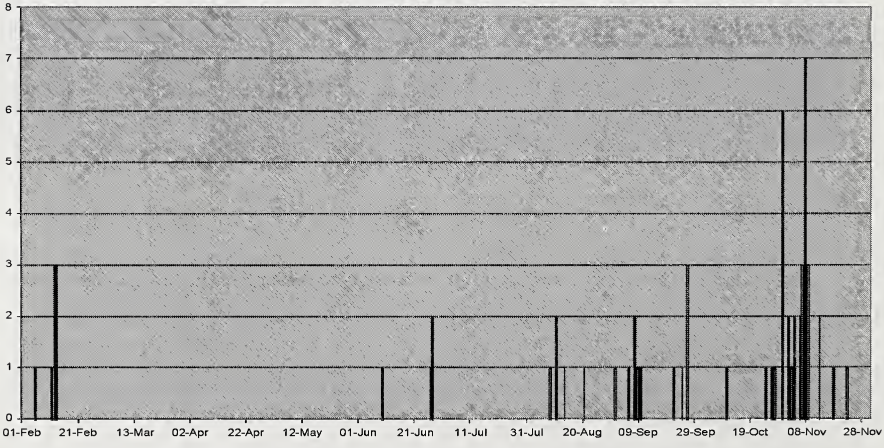

Fig. 10. Occurrence times of *Mythimna loreyi* during 2004 (dated records).

(2), 3.11, 5.11, 6.11 (2), 7.11 (2), 8.11 (2) (MC); Preston, 12.2 (MF); Puddletown, 10.8 (2), 30.10 (HWH); West Bexington, 12.11 (2) (RE, in Davey, 2005); Wyke Regis, 13.2 (DF). ISLE OF WIGHT **[10]** Culver Down, 24.10 (by day) (S. Pittis per SAK-J); Freshwater, 11.2, 13.2 (DBW per TN); Totland, 20.8, 6.11 (SAK-J). N. HAMPSHIRE **[12]** Selborne, 13.8 (AEA). W. SUSSEX **[13]** Walberton, 3.11 (JTR per CRP). E. SUSSEX **[14]** Peacehaven, 5.9, 2.11 (Pratt, 2005). E. KENT **[15]** Dungeness, 27.10 (KR); New Romney, 26.9 (SPC). W. KENT **[16]** Gravesend, 26.9 (RK, in Ferguson, 2006). W. GLOUCESTERSHIRE **[34]** Slimbridge, 9.6 (N. Woodward per RG). PEMBROKESHIRE **[45]** Skomer Island, 26.6 (Morgan, 2005).

2209 ***Mythimna flammea* (Curtis) Flame Wainscot [R][I/V]**
Coastal records away from known resident populations.
E. KENT **[15]** Lydd, 29.5 (KR).

2223 ***Calophasia lunula* (Hufn.) Toadflax Brocade [R][V/I]**
A localised resident in the southern seaboard counties between VC's **13** & **25**, and VC's **16** & **21**; records from these VC's are excluded as they are likely to originate from breeding populations.
DORSET **[9]** Weymouth, 9.6 (Harris, 2004). E. NORFOLK **[27]** Barnham Broom, 3.6, 12.6 (J. & J. Geeson); Stoke Holy Cross, 7.6 (A. Musgrove); first county records.

2241 ***Xylena vetusta* (Hb.) Red Sword-grass [R][I][V]**
Records of a potentially immigrant origin.
W. CORNWALL **[1]** IOS: Longstone, St Mary's, 28.3 (Scott, 2005a); IOS: Maypole, St Mary's, 7.10 (Scott, 2005a); Cury, The Lizard, 16.2 (FTJ), 23.11 (MT). E. CORNWALL **[2]** Downderry, 18.10 (S.C. Madge per LACT). DORSET **[9]** Puddletown, 20.10, 7.12, 16.12 (HWH); West Bexington, 19.4 (RE). W. SUSSEX **[13]** Walberton, 21.10 (JTR per CRP). E. SUFFOLK **[25]** Bawdsey, 8.11 (Deans, 2005). E. NORFOLK **[27]** Eccles-on-Sea, 14.11 (Bowman, 2005). S.E. YORKSHIRE **[61]** Spurn, 10.10 (Spence, 2005).

2246a ***Dryobota labecula* (Esp.) Oak Rustic [MC][I/V]**
Records likely to relate to local breeding, included for interest.
ISLE OF WIGHT **[10]** Totland, 31.10, 15.11, 16.11 (Knill-Jones, 2005a).

2251 ***Trigonophora flammea* (Esp.) Flame Brocade [I][FR]**
DORSET **[9]** Swanage, 19.10, 2.11 (RC^2). E. KENT **[15]** Lydd-on-Sea, 4.11 (DB^2).

2260 ***Conistra rubiginea* (D. & S.) Dotted Chestnut [R][V/I]**
Records associated with the February immigration.
DORSET **[9]** Portland Bird Observatory, 11.2 (MC); Puddletown, 11.2 (HWH).

2261 ***Conistra erythrocephala* (D. & S.) Red-headed Chestnut [I]**
Total no. reported: 20
By vice-county: 3 (1), **5** (1), **9** (7), **10** (2), **15** (6), **18** (1), **25** (2).
S. DEVON **[3]** Shaugh Prior, Dartmoor, 12.2, first county record since 1906 (A. Trout, in McCormick, 2004). S. SOMERSET **[5]** Orchard Wood, 4.3 (D. Evans per MY). DORSET **[9]** Durlston, 2.11 (SN);

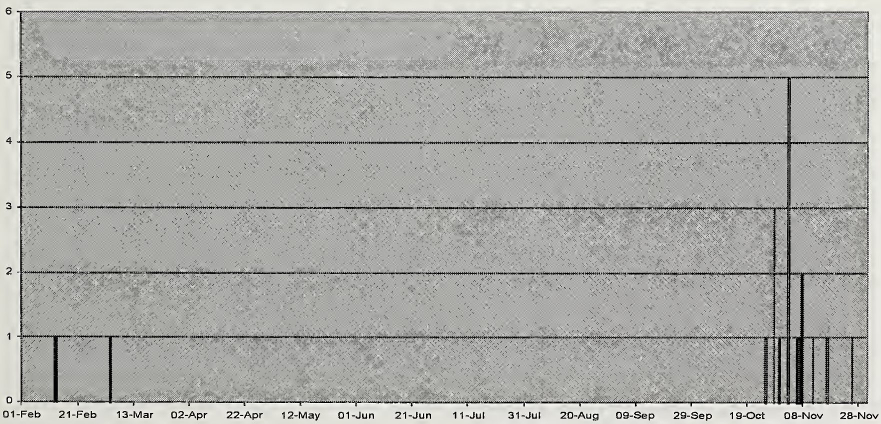

Fig. 11. Occurrence times of *Conistra erythrocephala* during 2004 (dated records).

Portland Bird Observatory, 2.11 (2), 6.11, 7.11 (MC); West Bexington, 5.11, 11.11 (Eden, 2005). ISLE OF WIGHT [**10**] Bonchurch, 13.2 (JH, in Knill-Jones, 2004); Cranmore, 16.11 (Knill-Jones, 2005a). E. KENT [**15**] Dungeness, 25.10 (KR); Gillingham, 30.10 (O. Davis); Kingsgate, 7.11 (Solly, 2005); Lydd-on-Sea, 2.11 (DB^2); Pegwell, 28.10 (Solly, 2005); St. Margaret's at Cliffe, 28.10 (AM). S. ESSEX [**18**] Bradwell-on-Sea, 28.10 (Dewick, 2005). E. SUFFOLK [**25**] Bawdsey, 2.11, 25.11, first county records (Deans, 2005).

2276 ***Xanthia ocellaris*** **(Borkh.) Pale-lemon Sallow [R][I][V]**
Coastal records away from known resident populations.
E. KENT [**15**] Lydd, 24.10 (CT).

2292 ***Cryphia algae*** **(Fab.) Tree-lichen Beauty [I][MC]**
Although probably established as a resident in several VC's, particularly VC's **16** & **21**, all received/sourced records are included for interest.
DORSET [**9**] Durlston, 7.8, 11.8 (SN); Portland Bird Observatory, 2.8 (2), 14.8 (Cade, 2005a); Swanage, 28.7 (RC^2). ISLE OF WIGHT [**10**] Bonchurch, 7.8 (3), 8.8 (JH per TN). S. HAMPSHIRE [**11**] Chilling, 8.8 (4) (PMP per TN); Fareham, 8.8 (RD per TN); Lower Test, 5.8 (MH per TN); Northney, Hayling Island, 2.8 (2), 8.8 (4), 15.8, 16.8 (Phillips, 2005); Southsea, 9.8 (JRL per TN); Titchfield, 7.8 (PMP per TN). W. SUSSEX [**13**] Ferring, 4.8, 8.8 (2) (THF per CRP); Lyminster, 17.8 (C. Glanfield per CRP); Middleton-on-Sea, 28.7 (Love, 2005); Walberton, 4.8, 8.8 (JTR per CRP); West Wittering, 2.8, 11.8 (Love, 2005). E. SUSSEX [**14**] Bexhill, 15.7, 2.8, 9.8 (KNA per CRP); Icklesham, 5.8, 8.8 (Hunter, 2005). E. KENT [**15**] Ashford, 8.8 (2) (P. Smytheman); Dungeness, 8.8, 9.8 (CR); Dymchurch, 9.8 (JO); Folkestone, 3.8 (I. Roberts), 9-10.8 (4) (Pickles, 2005); Graveney, 24.7 (T. Baldwin per SN); Greatstone, 30.7, 9.8 (BB); Kingsdown 29.7, 8.8 (NJ); Kingsgate, 3.8, 11.8, 14.8 (2) (FS); Littlestone, 30.7, 5.8 (KR); Lydd, 2.8, 6.8 (CT, KR); Lydd-on-Sea, 31.7, 5.8, 9.8, 10.8 (RC, KA); New Romney, 8.8 (KR); Pegwell, August (6) (FS); St Margaret's Bay, 8.8 (AM). W. KENT [**16**] Barnehurst, 25.7 (3), 27.7 (6), 28.7 (6), 29.7 (19), 2.8 (4), 8.8 (5), 13.8 (3), 22.8 (1) (Steele, 2005); Crayford, 19.7 (Steele, 2005); Dartford, 19.7 (D. Miller per IDF), 27.7 - 8.8 (15) (West, 2004); Greenwich, 22.7 (2) (THF); Woolwich, 5.8 (2) (R. Clark per SN). SURREY [**17**] Wandsworth, 7.8, 8.8 (A. Stanger per GAC). N. ESSEX [**19**] Little Oakley, 5.8 (G. Slater per BG); St Osyth, 8.8 (RA^2 per BG). MIDDLESEX [**21**] Regent's Park, 22.7 (6) (per THF), 3.8 (6) (per SN). E. SUFFOLK [**25**] Bawdsey, 3.8, 4.8, 9.8 (Deans, 2005); Landguard Bird Observatory, 3.8 (Odin, 2005); Orfordness, 2.8, 4.8 (JA, MCM per JBH).

2294 ***Cryphia raptricula*** **(D. & S.) Marbled Grey [I]**
E. KENT [**15**] Dungeness, 14.8 (CR per SPC).

2304 ***Trachea atriplicis*** **(L.) Orache Moth [I][FR]**
Total no. reported: **9**
By vice-county: **1** (2), **9** (1), **10** (2), **14** (1), **15** (1), **16** (1), **18** (1).
W. CORNWALL [**1**] IOS: Longstone, St Mary's, 24.5 (Scott, 2005a); Maenporth, 3.8 (Davis, 2005); first county records. DORSET [**9**] Marshwood, 27.7 (J. & I. Baker). ISLE OF WIGHT [**10**] Totland, 17.7, 24.7 (Knill-Jones, 2005a). E. SUSSEX [**14**] Peasmarsh, 23.7 (M. Feeny-Brown per CRP). E. KENT [**15**] New Romney, 25.6 (KR). W. KENT [**16**] Gravesend, 24.7 (DJLA). S. ESSEX [**18**] Bradwell-on-Sea, 12.8 (Dewick, 2005).

2097a ***Actinotia hyperici*** **(D. & S.) Pale-shouldered Cloud [I]**
E. SUFFOLK [**25**] Landguard Bird Observatory, 20.7, 26.7 (Odin, 2005). Four of the five British records have now come from this site.

2328 ***Apamea lateritia*** **(Hufn.) Scarce Brindle [I]**
SHETLAND ISLANDS [**112**] Fetlar, 15.8 (P. French).

2347 ***Chortodes extrema*** **(Hb.) Concolorous [R][I]**
Coastal records away from known resident populations.
E. KENT [**15**] Dungeness, 7.6 (KR). E. SUFFOLK [**25**] Orfordness, 31.5, 1.6, 2.6, 9.6 (MCM, JA per JBH).

2357 ***Amphipoea lucens*** **(Frey.) Large Ear [R][I]**
Records from southern & eastern England outside the known breeding range.
E. SUFFOLK [**25**] Eye, 28.7 (PK per AWP).

2387a ***Platyperigea kadenii*** **(Frey.) Clancy's Rustic [I][MC]**
W. SUSSEX [**13**] Ferring, 26.10 (THF). E. KENT [**15**] New Romney, 29.9, 5.10 (SPC).

2392a ***Proxenus hospes*** **(Frey.) Porter's Rustic [I]**
Total no. reported: **8**
By vice-county: **1** (2), **9** (3), **15** (2), **25** (1).

W. CORNWALL [1] IOS: St Agnes, 4.9 (Hicks, 2005); IOS: Longstone, St Mary's, 10.9 (Scott, 2005a). DORSET [9] Charmouth, 8.8 (PP); Portland Bird Observatory, 28.8 (2) (Cade, 2005a). E. KENT [15] Dungeness, 25.8 (KR); Dymchurch, 18.8 (JO); first county records. E. SUFFOLK [25] Ipswich, 19.8, first county record (NS).

2401 ***Heliothis viriplaca*** **(Hufn.) Marbled Clover [R][I/V]**
S. HAMPSHIRE [11] Fareham, 8.8 (KW per TN).

2404 ***Heliothis nubigera*** **(H.-S.) Eastern Bordered Straw [I]**
W. CORNWALL [1] Maenporth, 13.2 (Davis, 2005).

2407a ***Eublemma purpurina*** **(D. & S.) Beautiful Marbled [I]**
Total no. reported: 9
By vice-county: 1 (4), **9** (2), **11** (1), **12** (1), **24** (1).
W. CORNWALL [1] Buryas Bridge, Penzance, 21.8 (LO, in Cade, 2005b); IOS: Longstone, St Mary's, 19.8, 22.8 (MAS); Maenporth, 8.8 (GD); first county records. DORSET [9] Portland Bird Observatory, 9.8, 10.8 (Cade, 2005b). S. HAMPSHIRE [11] Southsea, 16.8, first VC record (IRT per TN). N. HAMPSHIRE [12] Cheriton Wood, near Bishop's Sutton, 31.7, first county record (P. Thompson per TN). BUCKINGHAMSHIRE [24] Near Wendover, 17.8, first county record (M. Albertini, P. Hall, in Cade, 2005b).
[Two additional probable records that escaped before identification could be confirmed occurred as follows: W. CORNWALL [1] Buryas Bridge, Penzance, 8.8 (LO, in Cade, 2005b); IOS: Longstone, St Mary's, 2.8 (MAS, in Cade 2005b).]

2408 ***Eublemma parva*** **(Hb.) Small Marbled [I]**
W. SUSSEX [13] Middleton-on-Sea, 13.6 (O. & P. Laugharne per CRP).

2413 ***Deltote bankiana*** **(Fab.) Silver Barred [R][I/V]**
E. KENT [15] Dymchurch, 26.6 (JO, in Pickles, 2005).

2415 ***Acontia lucida*** **(Hufn.) Pale Shoulder [I]**
Total no. reported: 6
By vice-county: 9 (2), **12** (1), **13** (1), **15** (1), **25** (1).
DORSET [9] Portland Bird Observatory, 10.8 (Cade, 2005a); West Bexington, 14.8 (Eden, 2005). N. HAMPSHIRE [12] Sherborne St John, 13.8, first VC record (NM, in Pickles, 2005). W. SUSSEX [13] Stockbridge, Chichester, 6.6 (M.C. Perry per CRP). E. KENT [15] Elvington, 26.8 (T.R. Preston). E. SUFFOLK [25] Blythburgh, 18.8, first county record (Wilson, 2005).

2428 ***Chrysodeixis chalcites*** **(Esp.) Golden Twin-spot [I][In]**
Total no. reported: 23
By vice-county: 15 (8), **18** (6), **19** (2), **20** (5), **25** (1), **67** (1).
E. KENT [15] Kingsgate, 10.9, 15.10 (Solly, 2005); Lydd, 14.10 (KR); Pegwell, 15.8, 25.10 (Solly, 2005); Ramsgate, 18.8, 23.10 (Solly, 2005); Sandwich, 31.8 (S. Tookey per SN). S. ESSEX [18]

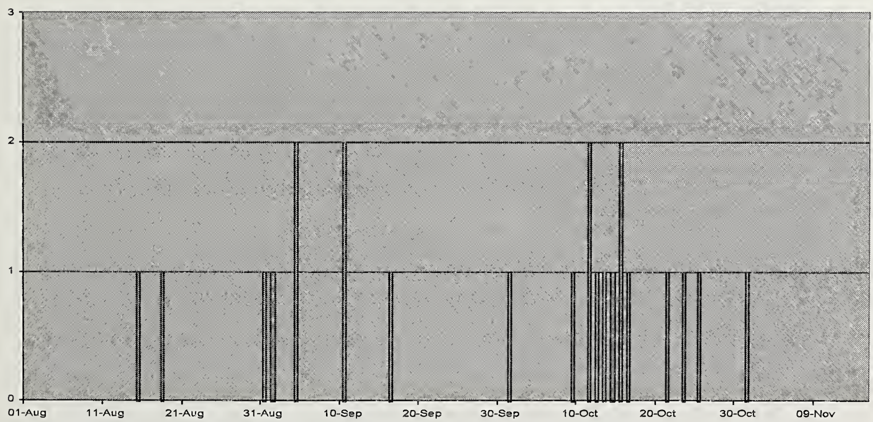

Fig. 12. Occurrence times of *Chrysodeixis chalcites* during 2004 (dated records).

Bradwell-on-Sea, 1.10, 9.10, 11.10, 15.10, 16.10 (Dewick, 2005); Theydon Bois, 21.10 (TG per BG). N. ESSEX [**19**] Dovercourt, 16.9 (CG); Frinton-on-Sea, 12.10 (B. Lock, RA[2] per BG). HERTFORDSHIRE [**20**] Cheshunt, 1.9, 4.9 (2) (M. Cooper, P. Roper per CWP); Wheathampstead, 11.10, 13.10 (TDC per CWP). E. SUFFOLK [**25**] Hollesley, 10.9 (Deans, 2005). DURHAM [**66**] Souter Lighthouse, 31.10, first county record (M. Newsome).

2432 ***Trichoplusia ni* (Hb.) Ni Moth [I]**
Total no. reported: 18
By vice-county: **1** (2), **5** (1), **6** (1), **9** (11), **10** (1), **13** (1), **15** (1).
W. CORNWALL [**1**] Maenporth, 12.2 (Davis, 2005); The Lizard, 12.2 (Tunmore, 2005). S. SOMERSET [**5**] Staplegrove, 4.2 (JMc). N. SOMERSET [**6**] Barton St David, 15.6 (C. Lawrence per MY). DORSET [**9**] Cogden Beach, 13.2 (MSP, MF); Durlston, 12.2 (SN); Portland Bird Observatory, 11.2 (3), 12.2 (MC); Sherborne, 28.6 (DH[2]); Upwey, 9.6 (PH); West Bexington, 6.8 (Eden, 2005); Weymouth, 11.2 (PHS), 9.6 (PH). ISLE OF WIGHT [**10**] Totland, 10.2 (Knill-Jones, 2004). W. SUSSEX [**13**] West Wittering, 11.8 (Love, 2005). E. KENT [**15**] Kingdown, 9.6 (NJ).

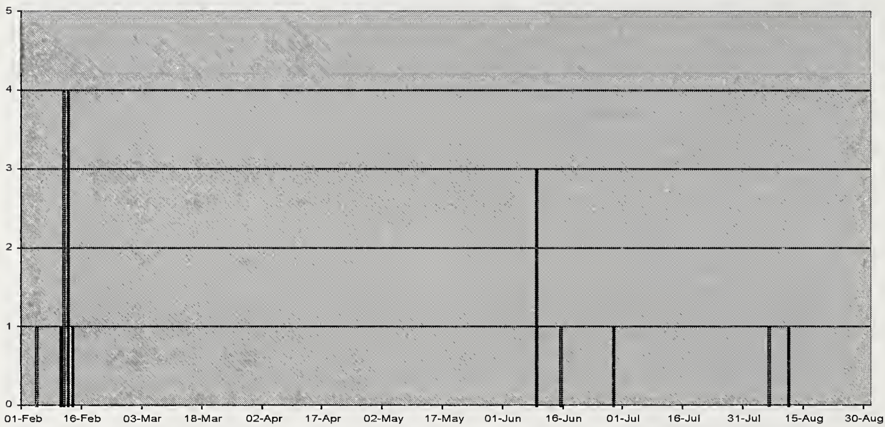

Fig. 13. Occurrence times of *Trichoplusia ni* during 2004 (dated records).

2436 ***Macdunnoughia confusa* (Steph.) Dewick's Plusia [I][In]**
Total no. reported: 8
By vice-county: **9** (2), **11** (1), **15** (3), **18** (2).
DORSET [**9**] Charmouth, 8.8 (PP); Preston, 1.8 (RL). S. HAMPSHIRE [**11**] Fareham, 5.9 [not 5.5 as stated in Pickles, 2005] (RD per TN). E. KENT [**15**] Kingdown, 24.10 (NJ); Kingsgate, 4.10 (FS); Lydd-on-Sea, 29.7 (DB[2]). S. ESSEX [**18**] Bradwell-on-Sea, 22.8, 5.9 (Dewick, 2005).
[An undated 2004 record from Northwood Green [**34**] (N. Tappin, in Gaunt, 2006) should now be regarded as unconfirmed (RG, pers. comm.).]

2447 ***Syngrapha interrogationis* (L.) Scarce Silver Y [R][I]**
The following records are all thought to relate to the plumbeous-grey immigrant form.
Total no. immigrants reported: 18
By vice-county: **16** (1), **18** (2), **19** (2), **58** (1), **61** (1), **62** (1), **112** (10).
W. KENT [**16**] Gravesend, 13.8 (RK, in Pickles, 2005). S. ESSEX [**18**] Bradwell-on-Sea, 5.8, 14.8 (Dewick, 2005). N. ESSEX [**19**] Frinton-on-Sea, 5.8 (B. Lock per BG); Magdalen Laver, 14.8 (TG per BG). CHESHIRE [**58**] Mere, 15.8 (S. Blamire per SN). S.E. YORKSHIRE [**61**] Spurn, 13.8 (Spence, 2005). N.E. YORKSHIRE [**62**] Saltburn-by-the-Sea, 14.8 (D. Money). SHETLAND ISLANDS [**112**] Bressay, 10.8 (2) (per MP); Eswick, 10.8, 11.8 (2) (per MP); Norwick, 4.8, 5.8 (per MP); Ocraquoy, 11.8 (per MP); Toft, 6.8, 7.8 (per MP).

2451 ***Catocala fraxini* (L.) Clifden Nonpareil [I][FR]**
S. DEVON [**3**] Uplyme, 28.9, first modern county record (AK).
[Unconfirmed records from Flitwick [**30**], 20.8 (C. Carpenter per LJH); and Shrewton [**8**], 26.8 (J. Curzon per MSP).]

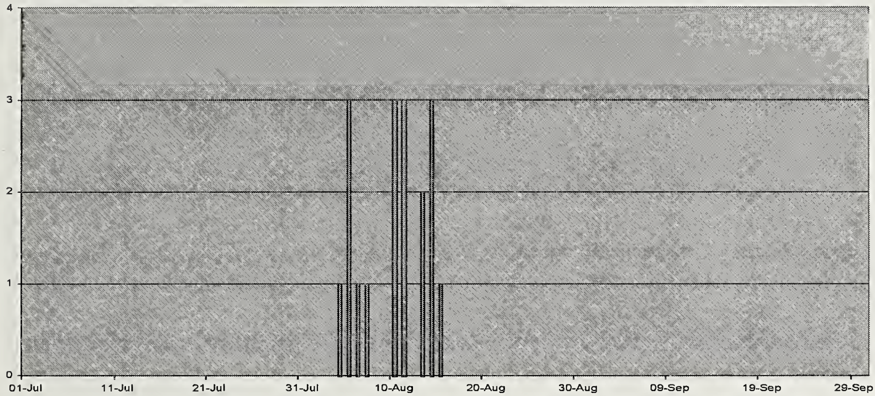

Fig. 14. Occurrence times of immigrant *Syngrapha interrogationis* during 2004 (dated records).

2451a ***Catocala conjuncta* (Esp.) Minsmere Crimson Underwing [I]**
E. SUFFOLK [25] Minsmere, 14.9, new to Britain (R. Harvey).

2453 ***Catocala electa* (View.) Rosy Underwing [I]**
W. SUSSEX [**13**] Walberton, 22.8 (JTR). E. KENT [**15**] Lydd-on-Sea, 24.8, first county record (DB[2]).

2455 ***Catocala sponsa* (L.) Dark Crimson Underwing [R][I/V]**
Total no. immigrants reported: 6
By vice-county: **9** (1), **13** (2), **14** (1), **15** (1), **17** (1), **22** (1).
DORSET [**9**] Preston, 2.8 (RL). W. SUSSEX [**13**] Walberton, 8.8 (JTR per CRP); West Wittering, 10.8 (SJP, in Higgott, 2005). E. SUSSEX [**14**] Hurst Green, 2.9 (M. Phillips, in Higgott, 2005); near Northiam, 10.9 (DB). E. KENT [**15**] Dungeness, 7.8 (MT, J. Nelson). SURREY [**17**] Weybridge, 9.8 (ARM per GAC). BERKSHIRE [**22**] Fernham, 13.8, first county record (SN, in Higgott, 2005).

2460 ***Dysgonia algira* (L.) Passenger [I]**
DORSET [**9**] Portland Bird Observatory, 24.8 (Cade, 2005a). E. KENT [**15**] Dymchurch, 1.8 (JO).

2465 ***Tyta luctuosa* (D. & S.) Four-spotted [R][I/V]**
Coastal/extralimital records of possible immigrant or vagrant examples.
N. DEVON [**4**] Dunsdon, nr. Holsworthy, 6.6 (Gregory, 2005). ISLE OF WIGHT [**10**] Totland, 5.8, first VC record in over fifty years (Knill-Jones, 2005a). E. KENT [**15**] Dungeness, 9.8 (CR per SPC).

2296 ***Tathorhynchus exsiccata* (Led.) Levant Blackneck [I]**
Total no. reported: 9
By vice-county: **1** (1), **9** (8).
W. CORNWALL [**1**] Maenporth, 10.2 (Davis, 2005). DORSET [**9**] Portland Bird Observatory, 11.2 (2), 12.2 (2) (MC); Puddletown, 13.2, 15.2 [not 11.2 & 13.2 as given in Davey, 2004 & elsehere] (HWH per PAD; Davey, 2005); West Bexington, 11.2, 12.2 (Eden, 2005).

2475 ***Parascotia fuliginaria* (L.) Waved Black [R][I/V]**
Coastal or extralimital records of possible immigrant examples.
E. KENT [**15**] Lydd-on-Sea, 24.7 (DB[2]). N. LINCOLNSHIRE [**54**] Langworth, 4.9, first VC record (C. Dobson).

2474 ***Rivula sericealis* (Scop.) Straw Dot [R][I/V]**
Coastal/extralimital records or coastal influxes that may be the result of immigration.
N. ABERDEENSHIRE [**93**] Auchnagatt, 13.8 (2); Oldmeldrum, 12.8 (Palmer *et al*, 2006). ORKNEY ISLANDS [**111**] 7.8 – 17.8 (9) (Palmer *et al*, 2006). SHETLAND ISLANDS [**112**] Foula, 10.8, first VC record (Pennington, 2005).

2478 ***Hypena obsitalis* (Hb.) Bloxworth Snout [R][V/I]**
Records outside the known breeding range in VC's **3** & **9**; likely to relate to immigration, internal dispersal or undetected breeding colonies.
W. CORNWALL [**1**] Mylor Churchtown, 12.11 (J. Cooke per PHB); The Lizard, 12.2, 20.11 (Tunmore, 2005). ISLE OF WIGHT [**10**] Ventnor, 5.12 (P.J. Cramp per SAK-J).

ANNEX 2: SELECTED RECORDS OF COMMONER MIGRANT SPECIES IN 2004

Numerical summaries are not provided for the migrant butterfly species listed in Annex 2, or for *Autographa gamma* (L.), due to the generalised, non-specific nature of reports of these species from many sites in 2004. Significant records, site totals and general comments have been given for these species, and county summaries of the diurnal records of the migrant butterflies & *Macroglossum stellatarum* are provided where these have been made available in spreadsheet format. The totals given in the tables for species often recorded diurnally such as *Plutella xylostella* and *Nomophila noctuella* refer to light-trap records, as only records of this nature were recorded and reported systematically. It has also not been possible to allocate months of occurrence to all the records of nocturnal Annex 2 species reported. It is therefore generally the case that the total given for the number of reported records is greater than the sum of the monthly totals given within the tables.

Whilst it is likely that the records included in the tables will not be comprehensive for the commoner species, the geographical and chronological occurrence patterns presented should closely reflect the overall picture for each species.

Key to the symbols used within the distribution tables:

SW South-west England (VC's 1-4).
CS Central southern England (coastal) (VC's 5, 6, 9-11, 13).
SE South-east England (coastal) (VC's 14-16, 18, 19).
EA East Anglia & Lincolnshire (VC's 25-28, 53, 54).
SI Southern England (inland) (VC's 7, 8, 12, 17, 20-24, 29-34).
W Wales (VC's 35, 41-52).
CE Central England (inland) (VC's 36-40, 53-58).
NE North-east England (VC's 61, 62, 66-68).
NW North-west England & the Isle of Man (VC's 59, 60, 63-65, 69-71).
S Scotland (VC's 72-112).
I Ireland (VC's H1-H40).

YPONOMEUTIDAE

0464 ***Plutella xylostella*** **(L.) [R][I]**

Total no. reported (light-trap records only): 2603+

Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
153	1108	689	139	176	27	89	141	39	20+	22

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	111	11	6	52	936	412	570	105	92	26	6

Selected annual totals from fixed traps: DORSET [9] Portland Bird Observatory – 437 (Cade, 2005a). W. SUSSEX [13] Selsey Peninsula – 154 at three sites (Love, 2005). E. KENT [15] Isle of Thanet – 489 at four sites (Solly, 2005); New Romney – 83 (SPC). BERKSHIRE [22] Fernham – 35 (SN per MH). S.E. YORKSHIRE [61] Spurn – 59 (Spence, 2005).

Earliest dates: N. DEVON [4] Bideford, 5.2 (S. Hatch per RFM). S. HAMPSHIRE [11] Lockburn, 5.1 (T. Walker per TN).

Latest dates: DORSET [9] Durlston, 15.12 (PAD); Portland Bird Observatory, 7.12, 10.12 (MC). ISLE OF WIGHT [10] Totland, December, undated (1) (Knill-Jones, 2005a). S. HAMPSHIRE [11] Funtley, 4.12 (MLO per TN). E. SUFFOLK [25] Bawdsey, 8.12 (MJD).
Large single night counts: DORSET [9] Portland Bird Observatory, 11.2 (28), 8.6 (42), 9.6 (45), 10.6 (58) (MC). W. SUSSEX [13] Kingsham, 10.6 (56) (SJP). E. SUFFOLK [25] Landguard Bird Observatory, 9.6 (36) (Odin, 2005).
Most northerly records: ORKNEY ISLANDS [111] 9.5 – 3.9 ('in low numbers') (Gauld, 2005). SHETLAND ISLANDS [112] Eswick, 9.6 (several), 10.6 (several), 31.10 (Anon., 2005a).

PYRALIDAE

1395 *Udea ferrugalis* **(Hb.) [I]**
Total no. reported: 8651
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
5590	1409	1187	216	95	46	14	46	26	9	13

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
30	19	7	6	99	160	655	1946	1483	1840	1670	370

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: Longstone, St Mary's – 4566 (Scott, 2005a); IOS: St Agnes - 317 (Hicks, 2005), 10-12.10 (52) (Davison, 2005); Maenporth – 240 (Davis, 2005); The Lizard – 179 at three sites (Tunmore, 2005). DORSET [9] Portland Bird Observatory – 473 (Cade, 2005a); West Bexington – 255 (Eden, 2005). ISLE OF WIGHT [10] Totland – 111 (SAK-J). W. SUSSEX [13] Selsey Peninsula – 97 at three sites (Love, 2005). S. HAMPSHIRE [11] Fareham – 80+ at two sites (RD, KW per TN); Southsea – 64 at two sites (IRT, JRL per TN). E. SUSSEX [14] Icklesham – 79 (Hunter, 2005); Peacehaven – 116 (Pratt, 2005). E. KENT [15] Dungeness area – 483 at eight sites (Clancy, 2005a); Kingsdown area – 67 at two sites (Jarman, 2005); Isle of Thanet – 228 at four sites (Solly, 2005). S. ESSEX [18] Bradwell-on-Sea – 194 (Dewick, 2005). E. SUFFOLK [25] Bawdsey – 92 (Deans, 2005). E. NORFOLK [27] Eccles-on-Sea – 49 (Bowman, 2005).
Earliest dates: W. CORNWALL [1] IOS: Longstone, St Mary's, 2.1 (MAS). DORSET [9] Walditch, 5.1 (MSP).
Latest dates: W. CORNWALL [1] IOS: St Mary's, Longstone, 31.12 (MAS). S. HAMPSHIRE [11] Fareham, 30.12 (RD per TN). N. HAMPSHIRE [12] Selborne, 30.12 (AEA per TN). WICKLOW [H20] Ashford, 30.12 (AT).
Large single night counts: W. CORNWALL [1] IOS: Longstone, St Mary's, 9.9 (97), 11.10 (199), 19.10 (114), 30.10 (141), 31.10 (121), 20.11 (103), 22.11 (161), 23.11 (168) (MAS). DORSET [9] Portland Bird Observatory, 19.10 (70).
Most northerly records: MID PERTHSHIRE [88] Finnart, Loch Rannoch, 7.7 (JHC). BANFFSHIRE [94] Ordiquhill, 5.9, 29.10, 3.11, 6.11 (RL[3]). ORKNEY ISLANDS [111] 1.11 (Gauld, 2005). SHETLAND ISLANDS [112] Eswick, 30.10 (2), 31.10 (Anon., 2005a).
Selected inland records: SURREY [17] Lingfield, 14.8 (K.E. Noble per GAC); S. Croydon, 15.8 (GAC); Weybridge, 10.8 (ARM per GAC). HERTFORDSHIRE [20] Bishops Stortford, 11.8, 23.8, 14.9, 22.9, 30.10 (CWP, JF); Hertford, 28.6, 1.9, 7.9 (AW per CWP); Sawbridgeworth, 7.8 (CWP). BERKSHIRE [22] Chawridge Bank, 25.8 (D.J. White per MH); Fernham, 8.8 – 3.11 (22) (SN per MH); Mortimer, 15.8, 17.11 (G. Dennis per MH); Wash Common, 17.8 (N. Asher per MH); Waltham, 21.8 (4), 22.11 (2) (per MH). E. GLOUCESTERSHIRE [33] Hempsted, 4.7 (G.R. Avery per RG). HUNTINGDONSHIRE [31] Catworth, 27.7 (BD); Earith, 4.9, 28.10 (DG per BD); Elton, 25.8, 31.10 (BS per BD); Hilton, 30.10 (BD); Old Weston, 27.8, 27.9, 29.10 (K. Royles per BD); Yaxley, August, September, undated (AF per BD). W. GLOUCESTERSHIRE [34] Slimbridge, 26.8 (N. Woodward per RG). LEICESTERSHIRE [55] Barrowden, 18.8 (2) (RF per APR); Charnwood Lodge, 28.10 (KT per APR); Enderby, 9.9 (MPS per APR); Ravenstone, undated (2) (KT per APR); Rutland Water, 16.11 (RIS per APR). CHESHIRE [58] Alsager, 4.9, 1.11 (M. Dale per SF); Bramhall, 4.9, 5.9 (A. Charlton per SF); Heald Green, 5.9 (B.T. Shaw per SF). MID PERTHSHIRE [88] Finnart, Loch Rannoch, 7.7 (JHC).

1398 *Nomophila noctuella* **(D. & S.) [I]**
Total no. reported (light-trap records only): 4126
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
818	2472	488	57	119	96	22	18	9	3	24

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
15	2172	20	-	4	297	171	837	290	77	12	1

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: Longstone, St Mary's – 486 (Scott, 2005a); IOS: St Agnes – 75 (Hicks, 2005); The Lizard – 93 at three sites (Tunmore, 2005). DORSET [9] Portland Bird Observatory – 622 (511 in Feb.) (Cade, 2005a); West Bexington – 288 (Eden, 2004). ISLE OF WIGHT [10] Totland – 98 (Knill-Jones, 2005a). W. SUSSEX [13] Selsey Peninsula – 192 at three sites (Love, 2005). E. SUSSEX [14] Icklesham – 58 (Hunter, 2005). E. KENT [15] Dungeness area – 151 at eight sites (Clancy, 2005a); Isle of Thanet – 131 at four sites (Solly, 2005). BERKSHIRE [22] Fernham – 38 (SN per MH).
Earliest dates: W. CORNWALL [1] IOS: Longstone, St Mary's, 19.1, 22.1 (MAS); The Lizard, January, undated (13) (Tunmore, 2005). W. LANCASHIRE [60] Burrow Heights, Lancaster, 3.2 (B. Cockburn per SMP).
Latest dates: E. SUSSEX [14] Rye, 25.12 (P. Roper per SN).
Large single night counts: W. CORNWALL [1] IOS: Longstone, St Mary's, 12.2 (61) (MAS). DORSET [9] Dorchester, 11.2 (53) (JD); Portland Bird Observatory, 11.2 (202), 12.2 (136), 13.2 (76) (MC); Puddletown, 11.2 (384), 12.2 (106), 13.2 (54) (HWH); Shapwick, 11.2 (42); West Bexington, 11.2 (133) (RE).
Most northerly records: S. LANCASHIRE [59] Crosby, Liverpool, 22.9 (J. Donnelly per SMP). W. LANCASHIRE [60] Burrow Heights, Lancaster, 3.2 (B. Cockburn per SMP). S.E. YORKSHIRE [61] Spurn, 16.5, 8-25.8 (3) (Spence, 2005). S.W. YORKSHIRE [63] Mirfield, 10.8 (M. Tordoff per CF). N.W. YORKSHIRE [65] Hutton Conyers, 11.8, 17.8, 21.8, 1.9, 2.9 (CF). S. NORTHUMBERLAND [67] Seaton Sluice, 9.6 (2) (per KWR); Tynemouth, 16.6, 14.8, 15.8, 22.10 (TT, KWR). SHETLAND ISLANDS [112] Eswick, 15.6, 25.8, 27.8 (Anon., 2005a).
Selected inland records: N. HAMPSHIRE [12] Fleet, 12.2 (R. Edmunds). SURREY [17] S. Croydon, 10.6 (GAC); Weybridge, 18.9 (ARM per GAC). HERTFORDSHIRE [20] Bishops Stortford, 29.7 (JF per CWP); Hertford, 6.2, 28.7, 6.8 (AW per CWP); Redbourne Meadows, 31.7 (2) (CWP). BERKSHIRE [22] Earley, 1.8 (2) (N.M. Hall per MH); Faringdon, 16.6 (MFVC per MH); Fernham, 12.2 – 23.8 (38) (SN per MH); Waltham, 16.9 (D.J. White per MH); Wash Common, 8.8 (N. Asher per MH); Windsor Forest, 30.6 (per MH). BUCKINGHAMSHIRE [24] Willen, 12.2 (G.E. Higgs per SN). W. SUFFOLK [26] Sicklesmere, 4.9 (SD per AWP). HUNTINGDONSHIRE [31] Earith, 25.6, 23.10 (DG per BD); Elton, 25.8 (BS per BD); Molesworth, 7.8 (K. Royles per BD); Old Weston, 14.6, 2.8, 13.8, 16.9 (K. Royles per BD); Yaxley, July, August, undated (AF per BD). E. GLOUCESTERSHIRE [33] Cheltenham, 22.8 (G. Meredith per RG); Beckford, 31.7 (J. Brock per RG). W. GLOUCESTERSHIRE [34] Culkerton, undated (M. Oates per RG); Pilning, 26.8 (J. Martin per RG); Slimbridge, 26.7 (N. Woodward per RG). WORCESTERSHIRE [37] Crossway Green, 13.2 (MS per SN). LEICESTERSHIRE [55] Clipsham, 7.8 (RF *et al.*); Enderby, 13.6 (MPS per APR); Eyebrook, 6.8 (3) (RF per APR); Luffenham Heath, 9.6 (JHC), 3.8 (2) (APR *et al.*); Markfield, 15.6, 9.8 (AJM per APR); Ravenstone, 11.8 (KT per APR); Swithland Res., 26.8 (GLF per APR); Whetstone, 30.10 (MPS per APR); Wigston, 7.8 (A. Poole per APR). CHESHIRE [58] Alsager, 11.2, 26.6 (M. Dale per SF). S.W. YORKSHIRE [63] Mirfield, 10.8 (M. Tordoff per CF). N.W. YORKSHIRE [65] Hutton Conyers, 11.8, 17.8, 21.8, 1.9, 2.9 (CF).

PIERIDAE

1545 *Colias croceus* **(Geoff.) Clouded Yellow [I][MC]**

Selected annual totals: S. HAMPSHIRE [11] Gosport – 143 (D. Tinling). E. KENT [15] Dungeness – 16+ (DW, PA). E. SUFFOLK [25] Landguard Bird Observatory – 11 (Odin, 2005).
County summaries: SOMERSET [5/6] 17.5 – 24.9, 121+ adults (per MY). SUSSEX [13/14] 19.5 – 8.10, 18+ adults (per CRP). KENT [15/16] 8.6 – 30.10, 28 tetrads (Easterbrook, 2005). LEICESTERSHIRE [55] 27.6 – 14.9, 27 adults (per APR).
Non-specific comments: E. SUSSEX [14] Icklesham, almost daily during August (inc. 4 on 12.8) & until 9.9 (I. Hunter per CRP). S.E. YORKSHIRE [61] Spurn, 10-13.6 (1-3), 4.8 – 8.9 (1-5 on many dates), 1.10 (Spence, 2005).
Earliest dates: E. CORNWALL [2] Downderry, 16.3 (A. Williams). S. DEVON [3] Branscombe Mouth, 9.4 (BPH). DORSET [9] Portland, 17.4 (Cade, 2005a).

Latest dates: S. DEVON [3] Branscombe, 14.11 (R.M. Hill per SN). DORSET [9] Preston, 13.11 (anon.); Southbourne, 14.11 (4) (M. Gibbons). ISLE OF WIGHT [10] Compton Bay, 14.11 (Knill-Jones, 2005a). S. HAMPSHIRE [11] Gosport, 13.11 (D. Tinling). W. GLOUCESTERSHIRE [34] Purton, 13.11 (D.A. Wright).

Large counts: N. SOMERSET [6] Carymoor, 21.8 (7), 2.9 (7), 9.9 (7) (R. Wheeler per MY). DORSET [9] Cogden Beach, 1.9 (6) (Parsons & Brereton, 2005). S. HAMPSHIRE [11] Gosport, 31.10 (10) (D. Tinling). E. KENT [15] Kingsdown, 30.7 (7), 4.8 (8) (Easterbrook, 2005). LEICESTERSHIRE [55] South Kilworth, 15.8 (6), 14.9 (8) (H. Ball per APR).

Most northerly records: CHESHIRE [58] Marbury, 7.6 (per SF). DOWN [H38] Belfast, 18.9 (D. Allen per IR).

Selected inland records: N. WILTSHIRE [7] Highworth, 23.7, 25.7, 30.7, 31.7, 3-5.8 (SN). SURREY [17] Hambledon, 8.6 (Porter, 2005); Pirbright Ranges, 29.8, 30.8 (GAC). BERKSHIRE [22] Faringdon, 4.8 (MFVC); near Reading, 11.11 (C. Webster). W. SUFFOLK [26] Bury St Edmunds, 8.6 (R. Parker per SN). E. NORFOLK [27] Wymondham, 11.6 (P. Bonham per SN). HUNTINGDONSHIRE [31] Abbots Ripton, 4.8 (C. Drage per BD); Bluntisham, 2.8 (R. Frost per BD); Earith, 4.8 (DG per BD); Elton, 21.7 (BS per BD); Kimbolton, 7.8 (A. Booth per BD); Needingworth, August, September, undated (B. & J. Milne per BD); St Ives, 17.8, 4.9 (B. & J. Milne per BD); West Perry, 8.8 (P. & E. Peacock per BD); Wood Walton, 4.8 (B. & J. Milne per BD). LEICESTERSHIRE [55] Anstey, 5.9 (M. Billings per APR); Broughton Astley, 4.9 (G. Adams per APR); Brown's Hill, 27.6 (2) (R. Johnson per APR); Fenny Drayton, 21.8 (H. Ball per APR); Market Harborough, 7.9 (D. Holland per APR); Rutland Water, 3.9 (S.M. Lister per APR); Sence Valley, 20.8 (A. Main per APR); Shawell Cutting, 8.8 (P. Parr per APR); Shenton, 12.8, 22.8 (S. Smith per APR); South Kilworth, 15.8 (6), 14.9 (8) (H. Ball per APR); Stonton Wyville, 11.8 (R. Hemington per APR); Syston, 15.8 (B. Hope per APR). CHESHIRE [58] Marbury, 7.6 (per SF).

Evidence of breeding: DORSET [9] Penn's Weare, Portland, frequent presence of small numbers until at least 11.11 (Cade, 2005a); Southbourne, present until 14.11 when four adults included an ovipositing female (M. Gibbons). ISLE OF WIGHT [10] 'Seems to be surviving the winter on the south coast of the Island' (Knill-Jones, 2005a). SURREY [17] Hambledon, 8.6, fresh female that produced meconium when boxed (Porter, 2005).

NYMPHALIDAE

1590 *Vanessa atalanta* **(L.) Red Admiral [R][I]**

Selected annual totals: W. CORNWALL [1] IOS: Longstone, St Mary's – 137 (Scott, 2005a). DORSET [9] West Bexington – 78 (Eden, 2005). E. SUSSEX [14] Peacehaven – 164 (Pratt, 2005). PEMBROKESHIRE [45] Skomer Island – 500 (Morgan, 2005). S.E. YORKSHIRE [61] Spurn – 579 (BRS). W. CORK [H3] Dursey Island – 112+ (Scott, 2005b).

County summaries: SOMERSET [5/6] 6.3 – 10.12, 698+ adults (per MY). KENT [15/16] 7.2 – 25.12, 122 tetrads (Easterbrook, 2005). MERIONETHSHIRE [48] 31.3 – 19.9, 43+ adults (per AG). LEICESTERSHIRE [55] 16.3 – 4.11, 197+ adults (per APR). CHESHIRE [58] 31.5 – 9.10, 109+ adults (per SF).

Earliest dates (active): S. HAMPSHIRE [11] New Milton, 6.1 (S. Keen); Romsey, 6.1 (D. Thelwell). E. KENT [15] Kingston, 3.1 (Easterbrook, 2005). S. ESSEX [18] Bradwell-on-Sea, 6.1 (Dewick, 2005).

Latest dates (active): W. CORNWALL [1] Bochym, The Lizard, '2-3 appearing on sunny days until the year end' (Tunmore, 2005). DORSET [9] E. Chelborough, 28.12 (per SN). S. HAMPSHIRE [11] Fareham, 15.12 (THF). W. KENT [16] Tonbridge, 25.12 (D. Douch). CAMBRIDGESHIRE [29] Welney, 19.12 (N. Sampford). E. YORKSHIRE [61/62] No site, 25.12 (per SN).

Large counts: N. SOMERSET [6] Lollover Hill, 19.9 (20) (D. Shears per MY). S. ESSEX [18] Bradwell-on-Sea, 10.6 (25), 4.10 (24) (Dewick, 2005). S.E. YORKSHIRE [61] Spurn, 7.10 (65) (Spence, 2005). BANFFSHIRE [94] Ordiquhill, 10.9 (32) (RL^3). ORKNEY ISLANDS [111] 11.6 (24) (Gauld, 2005). SHETLAND ISLANDS [112] 12.6 (55+ at four sites) (Anon., 2005a). W. CORK [H3] Dursey Island, 6.6 (60) (Scott, 2005b). WEXFORD [12] Tacumshin Lake, 7.6 (35) (T. Shevlin per IR).

Light-trap records: W. CORNWALL [1] IOS: St Agnes, 11.10 (Davison, 2005); The Lizard, September (1), November (1) (Tunmore, 2005). W. SUSSEX [13] Ardingly, 21.8 (JHC). S. ESSEX [18] Bradwell-on-Sea, 21.8 – 25.9 (8, inc. 2 on 23.9) (Dewick, 2005). E. SUFFOLK [25] Bawdsey, 8.9, 10.10, 14.10, 24.10 (Deans, 2005).

Immature stages/Evidence of breeding: W. CORNWALL [1] West Pentire, 10.8, pair *in cop.* (Fox & Sleep, 2005). FIFESHIRE [85] Lurg Loch, 22.6, ovipositing female (D. Davidson per JW).

1591 *Vanessa cardui* **(L.) Painted Lady [I]**

Selected annual totals: W. CORNWALL [1] IOS: Longstone, St Mary's – 52 (Scott, 2005a). DORSET [9] West Bexington – 53 (31 in February) (Eden, 2005). E. SUSSEX [14] Peacehaven – 37 (Pratt,

2005). E. KENT [15] Dungeness Bird Observatory – 70 (DW). PEMBROKESHIRE [45] Skomer Island – 381 (Morgan, 2005). S.E. YORKSHIRE [61] Spurn – 1389 (BRS). W. CORK [H3] Dursey Island – 96+ (Scott, 2005b).

County summaries: SOMERSET [5/6] 17.1 – 18.10, 521+ adults (per MY). SUSSEX [13/14] 182+ adults during February (per CRP). KENT [15/16] 4.2 – 30.10, 76 tetrads (Easterbrook, 2005). MERIONETHSHIRE [48] 7.6 – 19.9, 69+ adults (per AG). LEICESTERSHIRE [55] 29.5 – 7.10, 215+ adults (per APR). CHESHIRE [58] 24.5 – 26.9, 113+ adults (per SF).

Earliest dates (active): W. CORNWALL [1] Lizard, 18.1 (A. Pay), 24.1 (D. Wright per SN); St Ives, 18.1 (D. Carp per SN). E. CORNWALL [2] Fowey, 18.1 (W. Scott); Polruan, 18.1 (C. Madge per SN). S. DEVON [3] E. Prawle, 24.1 (M. Catt); Nr. Sidmouth, 18.1 (anon. per SN). N. SOMERSET [6] Draycott, 27.1 (I. Burfield per MY); Frome, 17.1 (P. Stephenson per MY).

Latest dates (active): N. HAMPSHIRE [12] Pamber Forest, 11.11 (per SN). E. KENT [15] Sellindge, 30.10 (Easterbrook, 2005). S. ESSEX [18] Bradwell-on-Sea, 26.10 (Dewick, 2005). S.E. YORKSHIRE [61] Spurn, 26.10 (Spence, 2005). W. CORK [H3] Dursey Island, 25.10 (Scott, 2005b).

Large counts: DORSET [9] Durlston, 8.2 (20) (Davey, 2004); Portland, 11.2 (100+) (Cade, 2005a). W. SUSSEX [13] Pagham, 7-8.2 (20) (per CRP). E. SUSSEX [14] Eastbourne, 7.2 (22), 9.2 (45), 18.2 (28) (Burrows, 2004). E. KENT [15] Pegwell, 9.6 (30), 13.6 (60) (Solly, 2005). S.E. YORKSHIRE [61] Spurn, 10.6 (55), 16.8 (180) (Spence, 2005). SHETLAND ISLANDS [112] 12.6 (70+ at five sites) (Anon., 2005a). W. CORK [H3] Cape Clear Island, 29.5 (27) (per IR); Dursey Island, 6.6 (65) (Scott, 2005b). WEXFORD [12] Tacumshin Lake, 7.6 (60) (T. Shevlin per IR). WICKLOW [20] Killoughter, 7.6 (38) (AT). DUBLIN [H21] Howth, 8.6 (150) (F. Smyth per IR).

Light-trap records: W. CORNWALL [1] The Lizard, September (1) (Tunmore, 2005). DORSET [9] Durlston, 7.8 (SN); Puddletown, 11.2 (HWH). S. ESSEX [18] Bradwell-on-Sea, 30.7, 31.7, 2.8 (Dewick, 2005). E. SUFFOLK [25] Bawdsey, 10.9 (Deans, 2005).

Immature stages: BANFFSHIRE [94] Gordonstown, 8.8, larva (RL^3).

GEOMETRIDAE

1716 ***Rhodometra sacraria* (L.) Vestal [I]**

Total no. reported: 254

Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
170	44	19	1	8	2	2	1	3	-	4

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	1	-	-	1	4	-	44	190	10	4	-

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: Longstone, St Mary's – 92 (Scott, 2005a).

Earliest dates: W. CORNWALL [1] IOS: Longstone, St Mary's, 4.2 (MAS). S. HAMPSHIRE [11] Southampton, 22.5 (Davis & Brook, 2005). E. KENT [15] Newington, 1.6 (REL).

Latest dates: E. CORNWALL [2] Fowey, 29.10 (W. Scott). W. SUSSEX [13] Ferring, 6.11 (THF). E. KENT [15] Elvington, 1.11 (T.R. Preston); Lydd, 29.10 (KR); Thanet, 1.11 (FS). S. ESSEX [18] Bradwell-on-Sea, 3.11 (Dewick, 2005).

Large single night counts: W. CORNWALL [1] IOS: Longstone, St Mary's, 9.9 (68) (Scott, 2005a); IOS: St Agnes, 9.9 (15) (Hicks, 2005); Land's End, 9.9 (30) (GBH).

Most northerly records: S. LANCASHIRE [59] Reedley, 17.9 (A & D. Wright per SMP). W. LANCASHIRE [60] Dolphinholme, 17.9 (N.A. Rogers per SMP); Higher Tatham, Lancaster, 18.9 (P.J. Marsh per SMP). S. NORTHUMBERLAND [67] Whitley Bay, 18.9 (KWR).

Selected inland records: N. HAMPSHIRE [12] Greywell, 26.9 (P. Boswell per SN); Sherborne St John, 5.9 (NM per TN). SURREY [17] Lingfield, 16.9 (K.E. Noble per GAC). BERKSHIRE [22] Faringdon, 4.8 (MFVC); Fernham, 11.9, 29.9 (SN). W. GLOUCESTERSHIRE [34] Lydney, 7.8 (RG). CHESHIRE [58] Heald Green, 10.8 (B.T. Shaw per SF); Marbury, 16.9 (E. Bentham per SF).

1720 ***Orthonama obstipata* (Fab.) Gem [I]**

Total no. reported: 99

Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
59	11	22	4	-	-	2	-	1	-	-

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	4	1	1	3	2	5	5	13	35	27	2

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: Longstone, St Mary's – 26 (Scott, 2005a); The Lizard – 15 at three sites (Tunmore, 2005). E. KENT [15] Dungeness area – 11 at fifteen sites (Clancy, 2005a).
Earliest dates: W. CORNWALL [1] IOS: Longstone, St Mary's, 20.1, 21.1 (MAS); IOS: St Agnes, 12.2 (2) (MEH, in Davey, 2004); The Lizard, 12.2 (MT, in Davey, 2004).
Latest dates: W. CORNWALL [1] IOS: Longstone, St Mary's, 5.12, 6.12 (MAS).
Large single night counts: E. KENT [15] New Romney, 31.10 (4) (SPC).
Most northerly records: S. LANCASHIRE [59] Martin Mere, 31.10 (A.P. Bunting per SMP).
Selected inland records: W. SUSSEX [13] Warnham, 2.11 (S. Bayley per CRP). E. NORFOLK [27] Stoke Holy Cross, 28.10 (A. Musgrove). LEICESTERSHIRE [55] Markfield, 11.5 (AJM per APR); Rutland Water, 29.7 (RIS per APR).

SPHINGIDAE

1972 *Agrius convolvuli* **(L.) Convolvulus Hawk-moth [I][In]**
Total no. adults reported: 233
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
95	53	33	15	10	4	3	5	3	12	-

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	-	-	1	-	1	14	51	141	22	2	-

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: Longstone, St Mary's – 53 (Scott, 2005a). DORSET [9] West Bexington – 17 (Eden, 2005).
Earliest dates: W. SUSSEX [13] Donnington, 29.6 (Love, 2005); Midhurst, 23.4 (J. Berendt per CRP). E. GLOUCESTERSHIRE [33] Stroud, 2.7 (J. Fleming per RG). W. LANCASHIRE [60] Galgate, Lancaster, 5.7 (per SMP).
Latest dates: ISLE OF WIGHT [10] Totland, November, undated (Knill-Jones, 2005a). S. HAMPSHIRE [11] Havant, 25.10 (P. Craddock per SN). E. KENT [15] Lydd-on-Sea, 3.11 (DB[2]).
Large single night counts: W. CORNWALL [1] IOS: Longstone, St Mary's, 9.9 (6) (MAS), 17.9 (7) (Scott, 2005a).
Most northerly records: N. NORTHUMBERLAND [68] Bamburgh, 4.10 (T. Crowe); Belford, 5.10 (R. Edwards per KWR). N. ABERDEENSHIRE [93] Auchnagatt, 12.8 (C. Harlow). BANFFSHIRE [94] Ordiquhill, 6.9 (RL[3]). W. INVERNESS-SHIRE [97] Spean Bridge, 19.9 (2) (P. Lee per SN). ORKNEY ISLANDS [111] 10.8 (Gauld, 2005). SHETLAND ISLANDS [112] Bigton, 13.8 (per MP); Eswick, 6.9 (TR); Fetlar, 2.9 (Anon., 2005a); Foula, 10.8 (per MP); Sella Ness, central Mainland, 1.8 (Pennington, 2005); Tingwall, 4.8 (per MP); Voehead, Bressay, 8.8 (per MP).
Selected inland records: S. WILTSHIRE [8] Martin, 17.9 (DGG per TN); Tidpit, 17.9 (DGG per TN). N. HAMPSHIRE [12] Oakhanger, 30.9 (J. Thoms per SN); Whitchurch, 13.9 (P.E. Hutchins per TN). W. KENT [16] Blackheath, London, 19.9 (D. Clinton). MIDDLESEX [21] Enfield, 1.10 (J. Rose per SN). BERKSHIRE [22] Fernham, 26.8 (SN). BEDFORDSHIRE [30] Stotfold, 8.8 (P. Thurman per LJH). E. GLOUCESTERSHIRE [33] Stroud, 2.7 (J. Fleming per RG). W. GLOUCESTERSHIRE [34] Lydney, 17.9 (RG).LEICESTERSHIRE [55] Croft, 22.9 (G. Adams per APR); Eyebrook, 26.9 (D. Parker per APR). NOTTINGHAMSHIRE [56] Newark, 6.8 (Viles & Wright, 2005). S. LANCASHIRE [59] Chorley, 23.9 (B. Derbyshire per SMP).
Immature stages: E. KENT [15] Ivychurch, 13.10, larva (R. Clifden per CRP). SURREY [17] Mitcham, 21.9, larva (P. Jones per SN). BERKSHIRE [22] Grove, 20.9, two pupae dug up from allotments (M. Calway per MH). E. SUFFOLK [25] Bawdsey, 17.9, larva (A. Nicholson per AWP). S.E. YORKSHIRE [61] Spurn, 9.9, larva (Spence, 2005).

1984 *Macroglossum stellatarum* **(L.) Humming-bird Hawk-moth [I]**
Total no. adults reported: 1411

Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
285	330	265	118	174	86	46	12	33	1	61

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4	35	38	32	11	241	372	190	189	105	12	3

Selected annual totals: W. CORNWALL [**1**] IOS: Longstone, St Mary's – 78 (Scott, 2005a). E. CORNWALL [**2**] Calstock – 21 (A.Mackonochie per LACT). ISLE OF WIGHT [**10**] Ventnor – 70 (A. Butler per SAK-J). E. SUSSEX [**14**] Peacehaven – 74 (Pratt, 2005). E. KENT [**15**] Dungeness area – 50 at six sites (per SPC); Kingsdown – 63 (NJ). PEMBROKESHIRE [**45**] Skomer Island – 29 (Morgan, 2005).

County summaries: SOMERSET [**5/6**] 7.2, 29.3 – 18.10, 52+ adults (per MY). HERTFORDSHIRE [**20**] 13.4 – 23.10, 39 adults (per CWP). BEDFORDSHIRE [**30**] 16.3 – 1.11, 29 adults (per LJH). HUNTINGDONSHIRE [**31**] 3.2, 1.7 – 3.10, 20.12, 18 adults (per BD). GLOUCESTERSHIRE [**33/34**] 29.3 – 14.10, 17 adults (per RG). MONMOUTHSHIRE [**35**] 23.5 – 29.10, seven adults (per MA). LEICESTERSHIRE [**55**] 16.1, 31.3 – 29.9, 14 adults (per APR). NOTTINGHAMSHIRE [**56**] 16.3 – 19.9, six adults (Viles & Wright, 2005). DERBYSHIRE [**57**] 22.6 – 12.10, nine adults (Viles & Wright, 2005). CHESHIRE [**58**] 6.2 (2), 9.6 – mid-August, 15 adults (per SF). LANCASHIRE [**59/60**] Feb, 8.6 – 18.10, 13 adults (per SMP). YORKSHIRE [**61-65**] 27.3 – 1.9, 16 adults (per CF).

Non-specific comments: E. CORNWALL [**2**] 16.3 – 11.11, Caradon: 52+ adults reported across the area (per LACT). DORSET [**9**] Portland, 3.2 – 23.4 & 10.6 – 24.11, recorded frequently in small numbers (Cade, 2005a). S. ESSEX [**18**] Bradwell-on-Sea, 13.6 – 28.10, present in exceptional numbers (Dewick, 2005). E. SUFFOLK [**25**] Landguard Bird Observatory, regular in July (Odin, 2005).

Earliest dates (active): S. SOMERSET [**5**] Ruishton, 7.2 (M. Ridge per PT). DORSET [**9**] Bournemouth, 4.2 (D. Ryves); Portland, 3.2 (Cade, 2005a); Swanage, 4.2 (G. Prescott). ISLE OF WIGHT [**10**] Whippingham, 3.2 (J. Rowell per TN). S. HAMPSHIRE [**11**] Farlington Marshes, 8.2 (B. Chapman); Southampton, 10.1 (D. Buttle). E. SUSSEX [**14**] Eastbourne, 7.2 (Burrows, 2004). MIDDLESEX [**21**] Crews Hill, 5.2 (J. Widgery per SN). HUNTINGDONSHIRE [**31**] St Neots, 3.2 (M. Davis per BD). DENBIGHSHIRE [**50**] Wrexham, 4.2 (P. Williams). LEICESTERSHIRE [**55**] Morcott, 16.1 (C.A. Boyfield per APR). CHESHIRE [**58**] Meols, 6.2 (C. Butterworth per SF); Neston, 6.2 (C. Butterworth per SF).

Latest dates (active): DORSET [**9**] Durlston, 4.12 (per SN); Portland, 22.11 (2), 24.11 (MC). N. HAMPSHIRE [**12**] Selborne, 23.12 (A.M. James per TN). E. KENT [**15**] Dungeness, 22.11 (D. Bunney). HUNTINGDONSHIRE [**31**] Easton, 20.12 (B. Davis per BD).

Large counts: W. CORNWALL [**1**] IOS: Hugh Town, St Mary's, 23.6 (8) (DJW); Longstone, St Mary's, 7.6 (6) (MAS). E. SUSSEX [**14**] Peacehaven, 29.6 (5) (CRP). E. KENT [**15**] Dungeness Bird Observatory, 5.7 (5) (DW).

Most northerly records: ORKNEY ISLANDS [**111**] 26.10 (Gauld, 2005).

Light-trap records: W. CORNWALL [**1**] IOS: St Agnes, June (1), September (1) (Hicks, 2005); The Lizard, June (2), August (1), September (1) (Tunmore, 2005). S. SOMERSET [**5**] Simonsbath, 28.7 (P. Owen per MY). DORSET [**9**] Durlston, 19.10 (SN). E. KENT [**15**] Isle of Thanet, July (1), August (1) (Solly, 2005). S. ESSEX [**18**] Bradwell-on-Sea, 7.9 (Dewick, 2005). BEDFORDSHIRE [**30**] Bedford, 26.8 (S. Williams per LJH); Yelden, 2.8 (A. Paynter per LJH). E. NORFOLK [**27**] Eccles-on-Sea, 9.9 (NB per DH).

Evidence of hibernation: KENT [**15/16**] No site, January, hibernating adult on outside of garage (via RH per SN). N. ESSEX [**19**] Beaumont-cum-Moze, 30.1, dormant adult found in an unheated room (B. Fisher). N.B. Active insects found indoors on 3.2 in VC's **9**, **10** & **31** and on 7.2 in VC **5** may relate to post-hibernation adults woken by mild temperatures (see Earliest dates). Adults found indoors on 20.12 in VC**31** & 23.12 in VC**12** may have been disturbed from winter dormancy (see Latest dates).

Immature stages: S. DEVON [**3**] Plymstock, 29.8, larva (T. Sleep per RFM). E. KENT [**15**] Kingsdown area, 15.8, larva (Jarman, 2005). S. ESSEX [**18**] Bradwell-on-Sea, 30.7, larva (Dewick, 2005).

NOCTUIDAE

2091 ***Agrotis ipsilon*** **(Hufn.) Dark Sword-grass [I]**

Total no. reported: 4997

Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
965	1540	1297	361	133	89	76	364	82	42	48

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10	924	142	57	65	586	639	1111	965	417	53	3

Selected annual totals from fixed traps: W. CORNWALL [**1**] IOS: Longstone, St Mary's – 526 (Scott, 2005a); The Lizard – 130 at three sites (Tunmore, 2005). DORSET [**9**] Portland Bird Observatory – 420 (Cade, 2005a); West Bexington – 125 (Eden, 2005). ISLE OF WIGHT [**10**] Totland – 223 (Knill-Jones, 2005a). E. SUSSEX [**14**] Icklesham – 287 (Hunter, 2005). E. KENT [**15**] Dungeness area – 327 at fifteen sites (Clancy, 2005a); Isle of Thanet – 276 at four sites (Solly, 2005). S. ESSEX [**18**] Bradwell-on-Sea – 260 (Dewick, 2005). E. SUFFOLK [**25**] Bawdsey – 147 (Deans, 2005). S.E. YORKSHIRE [**61**] Spurn – 161 (Spence, 2005). S. NORTHUMBERLAND [**67**] Tynemouth area – 73 at three sites (TT, KWR).
Earliest dates: W. CORNWALL [**1**] IOS: Longstone, St Mary's, 1.1, 14.1, 19.1 (2), 22.1 (MAS); Penzance, 23.1 (LO). S. DEVON [**3**] Wembury, January, undated (P. Stubbs per RFM). E. KENT [**15**] Ramsgate, 12.1 (PM); New Romney, 1.2 (SPC). W. LANCASHIRE [**60**] Burrow Heights, Lancaster, 3.2 (B. Cockburn per SMP). ISLE OF MAN [**71**] Maughold, 9.1 (LK).
Latest dates: W. CORNWALL [**1**] IOS: Longstone, St Mary's, 5.12 (MAS). E. CORNWALL [**2**] Torpoint, 15.12 (LACT). DORSET [**9**] Powerstock, 5.12 (PAD).
Large single night counts: W. CORNWALL [**1**] IOS: Longstone, St Mary's, 9.9 (21), 10.9 (20) (MAS). DORSET [**9**] Durlston, 5.2 (26) (PAD), 12.2 (25) (SN), 3.9 (41) (APR, KT); Portland Bird Observatory, 11.2 (28), 12.2 (26), 13.2 (22) (MC); Puddletown, 5.2 (24), 11.2 (38), 12.2 (42), 13.2 (37) (HWH). E. SUFFOLK [**25**] Bawdsey, 16.10 (41), 18.10 (29) (MJD).
Most northerly record (Feb.): SHETLAND ISLANDS [**112**] Eswick, 13.2, the northernmost migrant of any species associated with the February immigration (TR).

2119 *Peridroma saucia* **(Hb.) Pearly Underwing [I]**
Total no. reported: 1089
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
374	368	181	90	14	19	5	20	10	5	3

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3	14	5	6	12	69	23	40	377	315	182	18

Selected annual totals from fixed traps: W. CORNWALL [**1**] IOS: Longstone, St Mary's – 225 (Scott, 2005a); The Lizard – 45 at three sites (Tunmore, 2005). DORSET [**9**] Portland Bird Observatory – 231 (Cade, 2005a); West Bexington – 55 (Eden, 2005). ISLE OF WIGHT [**10**] Totland – 32 (Knill-Jones, 2005a). E. KENT [**15**] Dungeness area – 69 at fifteen sites (Clancy, 2005a); Isle of Thanet – 67 at four sites (Solly, 2005). S. ESSEX [**18**] Bradwell-on-Sea – 37 (Dewick, 2005). E. SUFFOLK [**25**] Bawdsey – 39 (Deans, 2005); Landguard Bird Observatory – 35 (Odin, 2005).
Earliest dates: W. CORNWALL [**1**] IOS: Longstone, St Mary's, 3.1, 19.1, 20.1 (MAS). DORSET [**9**] Portland Bird Observatory, 5.2 (MC). W. SUSSEX [**13**] Walberton, 3.2 (JTR per CRP).
Latest dates: W. CORNWALL [**1**] IOS: Longstone, St Mary's, 17 in December, last 22.12 (2) (MAS); nr. Penzance, 23.11 (J. Herbert). DORSET [**9**] Portland Bird Observatory, 27.11 (MC). E. KENT [**15**] Kingsgate, 5.12 (FS). E. SUFFOLK [**25**] Landguard Bird Observatory, 23.11 (Odin, 2005).
Large single night counts: W. CORNWALL [**1**] IOS: St Agnes, 11.10 (8) (Davison, 2005); IOS: Longstone, St Mary's, 4.9 (9) (MAS). DORSET [**9**] Durlston, 19.10 (17) (SN); Portland Bird Observatory, 15.9 (11), 25.9 (14), 26.9 (17), 5.11 (22), 6.11 (15), 7.11 (15) (MC). E. KENT [**15**] Kingsgate, 21.10 (9) (FS). E. SUFFOLK [**25**] Bawdsey, 16.10 (9) (MJD).
Most northerly records: W. LANCASHIRE [**60**] Heysham, 26.9 (P.J. Marsh per SMP). N.E YORKSHIRE [**62**] Haxby, 24.10 (T. Crawford per CF). N.W. YORKSHIRE [**65**] Hutton Conyers, 13.10 (per TE). S. NORTHUMBERLAND [**67**] Corbridge, 11.10 (per KWR); Tynemouth, 16.6, 11.7, 18.10,

19.10, 20.10, 22.10 (KWR, TT); Whitley Bay, 14.7 (KWR). ISLE OF MAN [71] Calf of Man, 12.10 (Bagworth, 2005). ROXBURGHSHIRE [80] Galashiels, 12.10 (JW). ORKNEY ISLANDS [111] 30.10 (Gauld, 2005). SHETLAND ISLANDS [112] Eswick, 2.10 (Anon., 2005a); Foula, 8.8, 9.8 (Anon., 2005a).

Selected inland records: N. HAMPSHIRE [12] Basingstoke, 2.8 (MW per TN); Sherborne St John, 4.10 (NM per TN). SURREY [17] Buckland, 8.10 (CH); Carshalton, 17.9 (D.A. Coleman per GAC); Epsom, 25.9 (N.W. Hiles per GAC); Holmbury St Mary, 16.9 (P.L. Haynes per GAC); Lingfield, 4.9 (K.E. Noble per GAC); Weybridge, 11.9 (ARM per GAC). HERTFORDSHIRE [20] Bishops Stortford, 15.10 (JF per CWP). BERKSHIRE [22] Fernham, 12.10, 1.11 (SN per MH). BUCKINGHAMSHIRE [24] Slough, 24.9 (R. Hayward). W. SUFFOLK [26] Barnhamcross, 24.9 (AWP). E. GLOUCESTERSHIRE [33] Cirencester, undated (A. Johnson per RG). W. GLOUCESTERSHIRE [34] Lydney, 16.11 (RG). MERIONETHSHIRE [48] Trawscoed, 5.9, 29.10 (AG). LEICESTERSHIRE [55] Barrowden, 1.10 (RF per APR); Lyddington, 5.10 (D. & F. Lee per APR). NOTTINGHAMSHIRE [56] Bunny Village, 28.9 (Viles & Wright, 2005). CHESHIRE [58] Nantwich, 18.10 (P. Griffiths per SF). S. LANCASHIRE [59] Flixton, 29.9, 14.10 (K. McCabe per SMP); Leigh, 14.10 (J.D. Wilson per SMP); Manchester 17.9, 18.9 (B. Smart per SMP); Pennington, 3.10 (PP per SMP). N.E. YORKSHIRE [61] Haxby, 24.10 (per TE). N.W. YORKSHIRE [65] Hutton Conyers, 13.10 (CF). S. NORTHUMBERLAND [67] Corbridge, 11.10 (per KWR). ROXBURGHSHIRE [80] Galashiels, 12.10 (JW).

2195 ***Mythimna vitellina*** **(Hb.) Delicate [I]**
Total no. reported: 491
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
209	193	67	14	3	1	1	-	3	-	-

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	-	-	1	2	25	14	39	175	153	38	-

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: Longstone, St Mary's – 124 (Scott, 2005a); IOS: St Agnes – 29 (Hicks, 2005). DORSET [9] Portland Bird Observatory – 29 (Cade, 2005a). ISLE OF WIGHT [10] Bonchurch – 40 (JH per TN); Totland – 71 (Knill-Jones, 2005a). E. KENT [15] Dungeness area – 32 at fifteen sites (Clancy, 2005a).

Earliest dates: W. CORNWALL [1] IOS: Longstone, St Mary's, 21.4 (MAS) [the count of 21 records for April from this site given in Scott (2005a) is a misprint]. E. SUFFOLK [25] Landguard, 18.5 (NO per JBH).

Latest dates: W. CORNWALL [1] Cury, The Lizard, 6.11 (FTJ). E. CORNWALL [2] St Germans, 6.11 (R.F. Champion per LACT). DORSET [9] Portland Bird Observatory, 7.11 (MC). ISLE OF WIGHT [10] Totland, 7.11 (SAK-J). W. SUSSEX [13] Ferring, 8.11 (THF); Walberton, 7.11 (JTR per CRP). E. KENT [15] Lydd, 7.11 (2) (KR, CT).

Large single night counts: W. CORNWALL [1] IOS: Longstone, St Mary's, 9.9 (7), 10.9 (6), 23.9 (7), 24.9 (6) (MAS).

Most northerly records: ISLE OF MAN [71] Dhoon Glen, 25.7, 21.8, 7.10 (LK).

Selected inland records: N. HAMPSHIRE [12] Cholderton, 5.8 (HE per TN); Selborne, 20.9, 5.10 (AEA). E. NORFOLK [27] Stoke Holy Cross, 27.10 (A. Musgrove). LEICESTERSHIRE [55] Leicester, 31.10 (APR).

2203 ***Mythimna unipuncta*** **(Haw.) White-speck [I][MC]**
Total no. reported: 8727+ (787 excluding Scillies records)
N.B. Figures for this species are somewhat distorted by records from the Isles of Scilly (VC1) where it has been an established resident for a number of years and occurs throughout the year, with numbers of adults peaking in the late autumn/early winter months.

Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
8570+	114	18	4	1	13	-	2	3	-	2

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
71	11	19	23	26	58	43	192	430	3090	2844	1166

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: Longstone, St Mary's – 7029 (Scott, 2005a); IOS: St Agnes – 561 (Hicks, 2005).
Earliest dates: W. CORNWALL [1] IOS: St Mary's, Longstone, 1.1 (MAS); Maenporth, 3.1 (Davis, 2005).
Latest dates: W. CORNWALL [1] IOS: St Mary's, Longstone, nightly until 31.12 (MAS); nr. Penzance, 5.12 (J. Herbert). DORSET [9] Walditch, 9.12 (MSP).
Large single night counts: W. CORNWALL [1] IOS: Longstone, St Mary's, 10.10 (317), 11.10 (288), 19.10 (463), 22.11 (282) (MAS), with counts of 100+ on twenty-five dates between October & December (Scott, 2005a); IOS: Porth Hellick Down, St Mary's, 5.8 (750+), part of a large arrival of this species off the sea (MAS); IOS: St Agnes, 11.11 (119) (Hicks, 2005).
Most northerly records: S.E. YORKSHIRE [61] Filey, 21.10 (per CF); Kilnsea, 19.10 (BRS). S. NORTHUMBERLAND [67] Tynemouth, 20.10 (KWR). ISLE OF MAN [71] Dhoon Glen, 2.10, 15.10 (2) (LK).
Selected inland records: S. SOMERSET [5] Closworth, 23.10 (J. Astley per MY); Norton sub Hamdon, 16.9 (IM per MY). N. HAMPSHIRE [12] South Wonston, Winchester, 9.6 (P.J.S. Smith per TN).

2385 ***Spodoptera exigua* (Hb.) Small Mottled Willow [I]**
Total no. reported: 635
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
180	403	39	2	5	1	1	4	-	-	-

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	536	1	-	4	25	10	34	12	4	-	-

Selected annual totals from fixed traps: W. CORNWALL [1] IOS: Longstone, St Mary's – 43 (Scott, 2005a); IOS: St Agnes – 37 (Hicks, 2005); The Lizard – 43 at three sites (all in Feb.) (Tunmore, 2005). DORSET [9] Portland Bird Observatory – 251 (247 in Feb.) (Cade, 2005a); West Bexington – 23 (22 in Feb.) (Eden, 2005). ISLE OF WIGHT [10] Totland – 16 (15 in Feb.) (Knill-Jones, 2005a).
Earliest dates: Widespread during the February immigration; earliest dated records as follows: W. CORNWALL [1] IOS: Longstone, St Mary's, 3.2 (MAS); nr. Penzance, 3.2 (LO); The Lizard, 3.2 (6) (MT). S. SOMERSET [5] Closworth, 4.2 (J. Astley per MY); Norton-sub-Hamdon, 4.2 (8) (IM per MY). DORSET [9] Puddletown, 3.2 (2) (HWH); Walditch, 4.2 (2) (MSP). ISLE OF WIGHT [10] Totland, 4.2 (3) (SAK-J). W. SUSSEX [13] Walberton, 4.2 (4) (JTR per CRP). E. SUSSEX [14] Heathfield, 3.2 (DRML per CRP). S. ESSEX [18] Bradwell-on-Sea, 4.2 (Dewick, 2005). N. ESSEX [19] St Osyth, 4.2 (RA^2 per BG).
Latest dates: W. CORNWALL [1] IOS: St Agnes, October, undated (Hicks, 2005). DORSET [9] Puddletown, 30.10 (HWH). E. KENT [15] Newington, 19.10 (2) (REL).
Large single night counts: W. CORNWALL [1] IOS: Longstone, St Mary's, 12.2 (14) (MAS); IOS: St Agnes, 12.2 (11) (MEH); The Lizard, 4.2 (20) (MT). DORSET [9] Portland Bird Observatory, 5.2 (23), 11.2 (164), 12.2 (50) (MC).
Most northerly records: CHESHIRE [58] Frodsham, 3.9 (R.G. Bertera per SF). S.E. YORKSHIRE [61] Holme on Spalding Moor, 29.7, 30.7 (2), 3.8 (D. Chesmore per CF).
Selected inland records: N. HAMPSHIRE [12] Selborne, 7.2, 7.7 (AEA per TN). W. SUSSEX [13] Rusper, 5.2 (S. Bayley per CRP). SURREY [14] Capel, 29.6 (Fraser, 2004). [An inland record from Bengeo, Hertford [20] on 22.5 (Davis & Brook, 2005) is erroneous (AW, pers. comm.).]
Importation: S.E. YORKSHIRE [61] Howden, 5.12, adult found inside an imported green pepper within which it had apparently completed its life-cycle (J. Small per CF).

2400 ***Helicoverpa armigera* (Hb.) Scarce Bordered Straw [I][In]**
Total no. reported: 367

Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
86	178	80	13	5	-	1	3	-	-	1

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	4	-	-	-	11	6	44	93	123	77	-

Selected annual totals from fixed traps: W. CORNWALL **[1]** IOS: Longstone, St Mary's – 58 (Scott, 2005a). DORSET **[9]** Portland Bird Observatory – 25 (Cade, 2005a); West Bexington – 21 (Eden, 2005). ISLE OF WIGHT **[10]** Bonchurch – 27 (JH per TN); Totland – 46 (Knill-Jones, 2005a). E. KENT **[15]** Dungeness area – 26 at fifteen sites (Clancy, 2005a); Isle of Thanet – 27 at four sites (Solly, 2005).
Earliest dates: DORSET **[9]** Preston, 4.2 (RL). ISLE OF WIGHT **[10]** Totland, 12.2 (2) (Knill-Jones, 2004). W. SUSSEX **[13]** Ferring-by-Sea, 11.2 (THF).
Latest dates: DORSET **[9]** Portland Bird Observatory, 11.11; Powerstock, 7.11 (PAD). S. HAMPSHIRE **[11]** Southsea, 6.11 (JRL per TN). W. SUSSEX **[13]** Ferring, 6.11 (THF). E. KENT **[15]** Greatstone, 6.11 (RC); Sandwich, 6.11 (IDH). [The two December records shown for the Lizard **[1]** in Tunmore (2005) were a misprint].
Large single night counts: W. CORNWALL **[1]** IOS: Longstone, St Mary's, 7.6 (5), 9.9 (18) (MAS); IOS: St Agnes, 9.9 (5) (Hicks, 2005). DORSET **[9]** Portland Bird Observatory, 1.11 (5) (MC, in Davey, 2005).
Most northerly records: S.E. YORKSHIRE **[61]** Kilnsea, 24.10 (BRS); Spurn, 12.8 (BRS). S. NORTHUMBERLAND **[67]** Tynemouth, 18.9 (KWR).
Selected inland records: N. HAMPSHIRE **[12]** Greywell, 20.9 (P. Boswell); Selborne, 10.8 (AEA). W. SUSSEX **[13]** Warnham, 14.10, 24.10 (S. Bayley per CRP). HERTFORDSHIRE **[20]** Bishops Stortford, 13.8, 26.8 (JF, JR). BERKSHIRE **[22]** Earley, Reading, 17.8 (I. Sims, in Pickles, 2005). LEICESTERSHIRE **[55]** Beacon Hill, 30.10 (APR, KT, MPS).
Importations: SURREY **[17]** Horley, 12.11, larva found in supermarket beans imported from Spain (CH, in Pickles, 2005). CHESHIRE **[58]** Bredbury, Stockport, 1.12, larva found in a supermarket lettuce (SF).

2403 ***Heliothis peltigera* (D. & S.) Bordered Straw [I]**
Total no. reported: 309
Distribution of records:

SW	CS	SE	EA	SI	W	CE	NE	NW	S	I
111	114	48	14	10	5	2	1	1	-	3

Months of occurrence:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
-	64	1	-	1	176	7	39	10	1	-	-

Selected annual totals from fixed traps: W. CORNWALL **[1]** IOS: Longstone, St Mary's – 93 (Scott, 2005a). DORSET **[9]** Portland Bird Observatory – 13 (9 in Feb.) (Cade, 2005a); West Bexington – 11 (Eden, 2005). ISLE OF WIGHT **[10]** Bonchurch – 13 (all Feb.) (JH per TN); Totland – 18 (17 in Feb.) (Knill-Jones, 2005a). E. KENT **[15]** Dungeness area – 20 at fifteen sites (Clancy, 2005a); Isle of Thanet – 11 at four sites (Solly, 2005). E. SUFFOLK **[25]** Landguard Bird Observatory – 9 (Odin, 2005).
Earliest dates: Widespread during the February immigration; earliest dated records as follows: DORSET **[9]** Preston, 4.2 (2) (RL), 5.2 (MF). ISLE OF WIGHT **[10]** Totland, 10.2 (3) (Knill-Jones, 2004).
Latest dates: W. CORNWALL **[1]** IOS: Longstone, St Mary's, 23.9 (MAS). E. KENT **[15]** Kingsgate, 17.9 (FS). E. SUFFOLK **[25]** Landguard Bird Observatory, 23.9 (Odin, 2005). HUNTINGDONSHIRE **[31]** Wood Walton Fen, 30.10 (BD). LEICESTERSHIRE **[55]** Barrowden, 17.9 (RF per APR).
Large single night counts: W. CORNWALL **[1]** IOS: Longstone, St Mary's, 10.6 (10), 13.6 (15), 16.6 (12) (MAS). ISLE OF WIGHT **[10]** Bonchurch, 13.2 (6) (JH).
Most northerly records: CHESHIRE **[58]** Bramhall, 12.6 (A. Charlton per SF). MID.W. YORKSHIRE **[64]** Tadcaster, 13.8 (D. Baker per CF). DURHAM **[66]** Souter Lighthouse, 13.8 (M. Newsome).

Selected inland records: N. HAMPSHIRE [**12**] Selborne, 22.8 (AEA). SURREY [**17**] Streatham, 4.8 (M. Trasenster). HERTFORDSHIRE [**20**] Bishops Stortford, 5.9 (JF, JR). BERKSHIRE [**22**] Fernham, 13.8, 6.9 (SN). OXFORDSHIRE [**23**] Charlbury, 19.8 (G. Candelin). BEDFORDSHIRE [**30**] Luton, 28.6 (H. Palmer per LJH). HUNTINGDONSHIRE [**31**] Wood Walton Fen, 30.10 (BD). W. GLOUCESTERSHIRE [**34**] Culkerton, 13.6 (2) (M. Oates per RG). LEICESTERSHIRE [**55**] Barrowden, 17.9 (RF per APR). CHESHIRE [**58**] Bramhall, 12.6 (A. Charlton per SF). MID.W. YORKSHIRE [**64**] Tadcaster, 13.8 (D. Baker per CF).

2441 *Autographa gamma* **(L.) Silver Y [I]**
Selected annual totals from fixed traps: W. CORNWALL [**1**] IOS: Longstone, St Mary's – 989 (Scott, 2005a); The Lizard – 438 at three sites (Tunmore, 2005). DORSET [**9**] Portland Bird Observatory – 1013 (Cade, 2005a); West Bexington – 1176 (Eden, 2005). ISLE OF WIGHT [**10**] Totland – 748 (Knill-Jones, 2005a). S. HAMPSHIRE [**11**] Southsea – 405 at two sites (IRT, JRL per TN). W. SUSSEX [**13**] Selsey Peninsula – 366 at three sites (Love, 2005). E. SUSSEX [**14**] Icklesham – 307 (Hunter, 2005); Peacehaven – 764 (Pratt, 2005). E. KENT [**15**] Dungeness area – 1850+ at ten sites (per SPC); Kingsdown area – 456 at two sites (Jarman, 2005); Isle of Thanet – 2079 at four sites (Solly, 2005). S. ESSEX [**18**] Bradwell-on-Sea – 3151 (Dewick, 2005). HERTFORDSHIRE [**20**] Bishops Stortford – 195 (JF); Hertford – 177 (AW). E. SUFFOLK [**25**] Bawdsey – 616 (Deans, 2005). E. NORFOLK [**27**] Eccles-on-Sea – 372 (Bowman, 2005). MERIONETHSHIRE [**48**] Tal-y-bont – 138 (J. & J. Hicks per AG). LEICESTERSHIRE [**55**] Barrowden – 94 (RF per APR); Ravenstone – 124 (KT per APR). S. NORTHUMBERLAND [**67**] Tynemouth area – 413 at three sites (TT, KWR).
Earliest dates: W. CORNWALL [**1**] IOS: Longstone, St Mary's, 2.1 (MAS); The Lizard, January, undated (Tunmore, 2005). DORSET [**9**] Preston, 6.1 (RL). WICKLOW [**H20**] Ashford, 19.1 (AT).
Latest dates: W. CORNWALL [**1**] IOS: Longstone, St Mary's, 31.12 (2) (MAS). S. DEVON [**3**] West Hill, 31.12 (PJB per RFM). DORSET [**9**] Preston, 29.12 (2) (RL). S. ESSEX [**18**] Woodford Green, 31.12 (R. Barfoot). S. HAMPSHIRE [**11**] Fareham, 30.12 (2) (per TN). BEDFORDSHIRE [**29**] Clophill, 29.12 (LJH). WORCESTERSHIRE [**37**] Crossway Green, 30.12 (MS). CHESHIRE [**58**] Gatley, 31.12 (D. Shaw per SHH).
Large single night counts: W. CORNWALL [**1**] IOS: Longstone, St Mary's, 9.9 (104). DORSET [**9**] Durlston, 3.9 (95) (APR, KT); West Bexington, 5.9 (102), 9.9 (199) (RE, in Davey, 2005). E. KENT [**15**] Kingsgate, 8.8 (84) (FS); Pegwell, 8.8 (120), 9.8 (147) (FS). E. SUFFOLK [**25**] Landguard Bird Observatory, 9.8 (71) (Odin, 2005). S.E. YORKSHIRE [**61**] Spurn, 11.7 (269), 13.8 (139) (Spence, 2005). S. NORTHUMBERLAND [**67**] Tynemouth, 9.8 (67) (TT). ORKNEY ISLANDS [**111**] 11.8 (115) (Gauld, 2005).
Large diurnal/dusk counts: N. SOMERSET [**6**] Knole, 11.6 (90) (J. Swales per MY). S.E. YORKSHIRE [**61**] Spurn, 13.7 (500), 8.8 (350), 5.9 (1000) (Spence, 2005). BANFFSHIRE [**94**] Ordiquhill, 11.8 (100) (RL[3]). SHETLAND ISLANDS [**112**] Eswick, 8.8 (c.500), 9.8 (75) (Anon., 2005a).
Immature stages: N. DEVON [**4**] Nr. Okehampton, 6.9, larvae (T. Sleep per RFM). HUNTINGDONSHIRE [**31**] Little Paxton, 15.8, larvae (I. Dawson per BD).

ANNEX 3: SELECTED 2004 CHANNEL ISLANDS [VC 113] RECORDS

1262 *Cydia amplana* **(Hb.)**
Alderney: St Annes, 16.8 (per PDMC). **Guernsey**: St Peters, 2.8, 3.8 (3), 5.8 (3), 7.8, 8.8 (18), 14.8 (3), 16.8 (2) (PDMC); St Sampsons, 1.8, 5.8 (3), 6.8 (2), 7.8 (2), 8.8 (10), 9.8 (13), 10.8, 14.8 (ML); Island total - 99 (Austin, 2005). **Jersey**: Island total – 120+ (per SN); Grouville, 2.8 (44), 'substantial numbers' on subsequent dates (Long, 2005a).

1319 *Chrysocrambus linetella* **(Fabr.)**
Jersey: Grouville, 16.6, first Jersey record (Long, 2006). **Sark**: Dixcart Valley, 28.6, first Sark record (Long, 2006).

1369 *Uresiphita polygonalis* **(D. & S.)**
Jersey: Grouville, 21.8, first Jersey record (Long, 2005a).

1539 *Papilio machaon ssp. gorganus* **(Fruhs.) Continental Swallowtail**
Guernsey: Mont Herault, 30.5 (Austin, 2005); Pleinmont, 9.8 (Austin, 2005). **Herm**: 22.8 (Austin, 2005). **Jersey**: Adults recorded from 22 localities across the island, with a number of larvae also found (per RL[2]); probably now a resident species on Jersey (RL[2], pers. comm.).

1630 *Danaus plexippus* **(L.) Monarch**
Jersey: St Peter, 18.9 (per RL[2]).

1639 ***Dendrolimus pini* (L.) Pine-tree Lappet**
Guernsey: St. Peters, 29.7 (PDMC, in Austin, 2005).

1649 ***Drepana curvatula* (Borkh.) Dusky Hook-tip**
Jersey: Grouville, 29.7, first Jersey record (Long, 2005a).

1741 ***Costaconvexa polygrammata* (Borkh.) Many-lined**
Jersey: Grouville, 2.8 (2) (RL^2).

1921a ***Crocallis dardoinaria* (Donzel) Dusky Scalloped Oak**
Jersey: Le Braye, St Ouen, 15.8, first Jersey record (Long, 2005a; Woods, 2005).

2016 ***Gluphisia crenata* (Esp.) Dusky Marbled Brown**
Guernsey: St. Sampsons, 14.8, first Guernsey record (ML, in Austin, 2005).

2085a ***Agrotis graslini* (Rambur) Woods' Dart**
Jersey: Le Braye, St Ouen, 15.8 (8) (Woods, 2005); 'abundant in the Jersey sand-dunes in August' (DJW, in Pickles, 2005).

2111a ***Noctua janthina* (D. & S.) Langmaid's Yellow Underwing**
Guernsey: St. Peters, 16.7, first VC record (PDMC, in Austin, 2005).

2387a ***Platyperigea kadenii* (Frey.) Clancy's Rustic**
Guernsey: St John, 14.6 (RA). Jersey: Creux Baillot, 29.9 (RL^2); Grouville, 9.9, 25.9 (4), 27.9 (4), 7.10 (Long, 2005a).

2436 ***Macdunnoughia confusa* (Steph.) Dewick's Plusia**
Jersey: Grouville, 14.8 (Long, 2005a).

2453 ***Catocala electa* (View.) Rosy Underwing**
Jersey: Grouville, 21.8 (RL^2).

2455 ***Catocala sponsa* (L.) Dark Crimson Underwing**
Jersey: Grouville, 14.8 (RL^2, in Higgott, 2005).

2296 ***Tathorhynchus exsiccata* (Led.) Levant Blackneck**
Guernsey: St. Peters, 12.2, first VC record (PDMC, in Austin, 2005).

APPENDIX 1

Corrections/Additions to 2003 report

1375 ***Ostrinia nubilalis* (Hb.) [R][I][V]**
S. DEVON [3] Otterton, September (larva) (RJH); recorder also reports larvae in VC3 in 1985 and VC6 in 1997 & 1998.

1403 ***Diasemiopsis ramburialis* (Dup.)**
CHANNEL ISLANDS **[113]** Jersey: Grouville, 28.8 (Long, 2004).

1477 ***Ephestia figulilella* (Gregs.) [In][I?]**
MIDDLESEX **[21]** Wood Green, 14.6, first modern county record (Langmaid & Young, 2006).

1539 ***Papilio machaon ssp. gorganus* (Fruhs.) Continental Swallowtail**
CHANNEL ISLANDS **[113]** Jersey: Victoria Tower, 17-22.7 (7) (Long, 2005b). Larvae were also found, with adults reported from several locations on the island (per RL^2).

1540 ***Iphiclides podalirius* (L.) Scarce Swallowtail**
CHANNEL ISLANDS **[113]** Jersey: Victoria Tower, 18.7 (P. Hurst, in Long, 2005b).

1987 ***Hyles gallii* (Rott.) Bedstraw Hawk-moth [I][MC]**
ORKNEY ISLANDS **[111]** Several larvae found at a number of locations (Gauld, 2005).

2051 ***Lithosia quadra* (L.) Four-spotted Footman [R][I]**
[FERMANAGH **[H33]** Crom, 16.7 (2) (per IR).] This record published in error in 2003 report – relates to 2004 (details as given in Annex 1).

2083 ***Euxoa cursoria* (Hufn.) Coast Dart**
Herm: 28-30.7, [first VC record] (DJW per RA). This was not the first VC record as stated, as the species has been recorded on several occassions in the recent past from Jersey (RL^2, pers. comm.)

2436 ***Macdunnoughia confusa*** **(Steph.) Dewick's Plusia**
CHANNEL ISLANDS [**113**] Jersey: Surville, 19.7 (Long, 2004); Vallee des Vaux, 3.5 (Long, 2004).

APPENDIX 2

Corrections/Additions to 2002 report

2051 ***Lithosia quadra*** **(L.) Four-spotted Footman [R][I]**
[BERKSHIRE [**22**] Mortimer, 18.6 (GD per IRT).] Erroneous record – a transcription for *Cybosia mesomella* L. (MH, pers. comm.).

Initials of recorders

AAL	Lawrence, A.A.	GLF	Finch, G.L.	NB	Bowman, N.
AC	Cornish, A.	GMH	Haggett, G.M.	NJ	Jarman, N.
AEA	Aston, A.E.	HE	Edmunds, H.	NM	Montegriffo, N.
AF	Frost, A.	HEB	Beaumont, H.E.	NO	Odin, N.
AG	Graham, A.	HWH	Wood Homer, H.	NS	Sherman, N.
AGJB	Butcher, A.G.J.	IC	Cook, I.	PA	Akers, P.
AHD	Dobson, A.H.	IDH	Hunter, I.	PAD	Davey, P.A.
AJ	Jenkins, A.	IM	Mathieson, I.	PAC	Crowther, P.A.
AJM	Mackay, A.J.	IR	Rippey, I.	PDMC	Costen, P.D.M.
AJP	Pickles, A.J.	IRT	Thirlwell, I.R.	PH	Harris, P.
AK	Kennard, A.	JA	Askins, J.	PHB	Boggis, P.H.
AM	Morris, A.	JBH	Higgott, J.B.	PHS	Stirling, P.H.
APR	Russell, A.P.	JD	Down, J.	PJB	Baker, P.J.
ARC	Collins, A.R.	JF	Fish, J.	PK	Kitchener, P.
ARM	Mitchell, A.R.	JH	Halsey, J.	PM	Milton, P.
AT	Tyner, A.	JHC	Clarke, J.H.	PMP	Potts, P.M.
AW	Wood, A.	JMc	McGill, J.	PP	Pugh, P.
AWP	Pritchard, A.W.	JO	Owen, J.	PPH	Heathcote, P. & P.
BB	Banson, B.	JR	Reeves, J.	PT	Tennant, P.
BD	Dickerson, B.	JS	Stokes, J.	RA	Austin, R.
BFS	Skinner, B.F.	JTR	Radford, J.T.	RA^2	Arthur, R.
BG	Goodey, B.	JW	Waddell, J.	RAB	Bell, R.A.
BKW	West, B.K.	KA	Arter, K.	RC	Clamp, R.
B&LB	Bewsher, B. & L.	KNA	Alexander, K.N.	RC^2	Cox, R.
BPH	Henwood, B.P.	KR	Redshaw, K.	RD	Dickson, R.
BRS	Spence, B.R.	KT	Tailby, K.	RE	Eden, R.
BS	Stone, B.	KW	Wheeler, K.	REL	Lane, R.E.
CF	Fletcher, C.	KWR	Regan, K.W.	RF	Follows, R.
CH	Hart, C.	LB-L	Broom-Lynne, L.	RFM	McCormick, R.F.
CG	Gibson, C.	LJH	Hill, L.J.	RG	Gaunt, R.
CMM	Manley, C.M.	LK	Kneale, L.	RH	Hollins, R.
CR	Roots, C.	LO	Oakes, L.	RIS	Rothamsted Insect Survey
CRP	Pratt, C.R.	LACT	Truscott, L.A.C.	RJH	Heckford, R.J.
CT	Turley, C.	MA	Anthoney, M.	RK	Kiddie, R.
CWP	Plant, C.W.	MAS	Scott, M.A. & W.J.	RL	Lambert, R.
DB	Burrows, D.	MC	Cade, M.	RL^2	Long, R.
DB^2	Beck, D.	MCM	Marsh, M.C.	RL^3	Leverton, R.
DBW	Wooldridge, D.	MCP	Perry, M.C.	SAK-J	Knill-Jones, S.A.
DCGB	Brown, D.C.G.	ME	Easterbrook, M.	SB	Bosanquet, S.
DF	Foot, D.	MEH	Hicks, M.E.	SD	Dumican, S.
DGG	Green, D.G.	MF	Forster, M.	SF	Farrell, S.
DH	Hipperson, D.	MFVC	Corley, M.F.V.	SHH	Hind, S.H.
DH^2	Hoare, D.	MH	Harvey, M.	SJD	Dewick, S.J.
DJLA	Agassiz, D.J.L.	MJ	Jeffes, M.	SJP	Patton, S.J.
DJW	Wedd, D.J.	MJD	Deans, M.J.	SMP	Palmer, S.M.

DRML	Long, D.R.M.	MJT	Tickner, M.J.	SN	Nash, S.
DRWG	Gilmore, D.R.W.	ML	Lawlor, M.	SPC	Clancy, S.P.
DW	Walker, D.	MLO	Opie, M.L.	TDC	Chapman, T.D.
DW^2	Wooldridge, D.	MP	Pennington, M.	TE	Ezard, T.
FS	Solly, F.	MPS	Skevington, M.P.	TG	Green, T.
FTJ	Johns, F.T.	MS	Southall, M.	THF	Freed, T.H.
GAC	Collins, G.A.	MSP	Parsons, M.S.	TN	Norriss, T.
GBH	Hocking, G.B.	MT	Tunmore, M.	TR	Rogers, T.
GD	Davis, G.	MW	Wall, M.	TS	Steele, T.
GDC	Craine, G.D.	MY	Yeates, M.	TT	Tams, T.

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THE RISE OF THE SCARCE BORDERED STRAW *HELICOVERPA ARMIGERA* (HÜBNER) (LEP.: NOCTUIDAE)

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Abstract

The immigration records of the Scarce Bordered Straw *Helicoverpa armigera* (Hb.) (Lep.: Noctuidae) are analysed for Britain from 1969 onwards with comparison made to the numbers of recorders and the number of inland records. The occurrence of this potential pest species was found to be increasing, with the moth penetrating inland more frequently. The most likely explanation for this increase is considered to be climate change.

Introduction

The Scarce Bordered Straw *Helicoverpa armigera* (Hübner) has long been known as an immigrant to the UK, as well as an adventive. As an imported larva to this country it has been found feeding on various fruits and vegetables, including beans, lettuce (Clancy & Skinner, in press) and peas and their pods (C.R. Pratt pers. comm.), and also on cuttings of chrysanthemum and carnation (Bretherton, Goater & Lorimer, 1983). Rarely, the larva has been found in the wild in Britain, with records from 1876 and 1997 on the Isle of Wight on Red Geranium *Pelargonium* sp. (South, 1961 & Goater, 1998); Devon in 1999, a larva on the seeds of Yellow Rattle *Rhinanthus minor* (Skinner & Collins, 2002) and again in 2006 when 15 to 20 larvae were found feeding on Antirrhinums with one also found at another site on Devil's-bit Scabious *Succisa pratensis* (Henwood, in press); and Cornwall in 2003, a single larva on Tree Mallow *Lavatera arborea* (Nelson & Tunmore, 2004).

Karsholt & Razowski (1996) list this species as being reported in virtually every country in Europe. Also known as the Old World or African Bollworm, Pedgley (1985) additionally gives it as a species that breeds widely in the tropics and subtropics, where its larvae damage many crops, including cereals, pulses, tomatoes and cotton, and comments that it damages crops in southern Europe, where it also feeds on a wide range of wild plants. In southern Europe it usually has two or three generations, each of about five weeks duration, with the moths becoming most frequent in September and early October. Pedgley (*loc. cit.*) suggested the origin of the immigrants to Britain to be southern Europe. In southern France emergence is from mid-June, indicating that earlier moths in that country may be immigrant in origin. Potential sources for these are from the Canary Islands, Madeira and to the south and east of the Mediterranean (Morocco, Algeria, Israel etc.), where the species has several generations a year and can be a pest of economic importance. This would indicate that the unusual records of four February examples seen in Britain in 2004 (Clancy & Skinner, *in press*) would probably have originated beyond Europe. Davey (2004), through examining weather patterns, speculated that the likely origin of these examples was the western Sahara and Mauritania regions and that their flight was over the Atlantic, avoiding continental Europe altogether.

The Scarce Bordered Straw is given as a quarantine pest on the Defra website (www.defra.gov.uk/planth/pestnote/helicov.htm) stating that is it found in much of mainland Europe, Asia, Africa and Australasia. The site adds that the species "would be capable of causing significant crop losses" and lists carnations, geraniums and other ornamentals as well as fruits and vegetables, such as tomatoes as possible hosts. The species is listed as a notifiable pest and, in referring to nurseries, the site points out that the local Defra office must be informed immediately if the Scarce Bordered Straw is suspected to be present. Established outbreaks are given as being very damaging and difficult to eradicate.

A brief history of the Scarce Bordered Straw in the UK

South (1961) gives the species as being first recorded in the British Isles at Salford, Lancashire, in 1840, and lists several records to 1903, going on to state that "odd specimens have been recorded from Ireland and England since". Bretherton, Goater & Lorimer (1983) report that since 1940 only 170 examples of the Scarce Bordered Straw had been noted and prior to that only about 100 had been seen, 28 of these in 1859. Of the 170, one-third was recorded in Cornwall, Devon and Dorset. They went on to state that there are records in "most years" and that records are "very markedly coastal". Between 1940 and 1969 (when 15 were recorded), double figures were only seen in 1950 and 1956. Of the few inland records (i.e. away from coastal counties), some could definitely be attributed to be primary immigrants, whereas others were probably the result of importation. Bretherton, Goater & Lorimer (*loc. cit.*) reported that one of the "surest means of obtaining fine moths for the collection is an arrangement with a greengrocer for larvae"!

As recently as Skinner (1998) the moth was thought to be often scarce and not always achieving double figures in any one year, with the "approximately eighty records" in each of 1988 and 1992 (although the total was found to be over 100 in each year subsequently) thought of as "exceptional" It is clear that until fairly recently in Britain this was indeed the *Scarce* Bordered Straw.

The Immigration Record from 1969 onwards

Summary accounts of immigration to this country had been published in *The Entomologist* since 1932. However, Bretherton (1982 & 1983) summarized the immigration of Lepidoptera to the British Isles from 1969 to 1977 in the *Proceedings and Transactions of the British Entomological and Natural History Society*, giving locations, dates and numbers seen. After that, Bretherton & Chalmers-Hunt (1982-1990) and Chalmers-Hunt & Bretherton (1993) provided an annual account of immigration in *Entomologists Rec. J. Var.* covering the years 1978 until 1989. Further accounts followed, in a similar format, and have covered the period up until 2003 (Chalmers-Hunt & Skinner, 1992, Skinner & Parsons, 1996-2000, Skinner & Collins, 2000, 2002 & 2004, Nash & Skinner, 2005 and Clancy & Skinner, 2006 & 2007). These compilations are still being published but are not yet available for 2004 onwards, although the data for 2004 has been obtained in advance of publication

(Clancy & Skinner, *in press*). Accounts from a range of coastal localities are available in *Atropos* covering 2005 (*Atropos*, No. 27: 45-75) and including 2006 (*Atropos*, No. 30: 47-86), giving a partial summary of the abundance of species in the country in these two years.

From these accounts it is possible to derive an annual total number of records for this species for the years 1969 to 2004, with a minimum total figure for 2005 and 2006. Further to this it was possible to determine the number of examples recorded inland from 1969 to 2004, these totals covering numbers found away from the coastal counties of Cornwall to Kent (including Somerset), and north to Lincolnshire (also including Surrey). The results from 2002 onwards were compiled in a slightly different way, with the county recorders encouraged to contribute (S. Clancy, pers. comm.). Consequently, the totals for those years may be more comprehensive than in previous years, although this is not thought to alter the results significantly.

As county recorder, PD has compiled totals for the Scarce Bordered Straw in Dorset from those who have recorded the species in that county for each of 2005 and 2006. These totals are 89 and 1950 respectively, compared to 49 and 767 derived from the totals published for the Dorset coastal site accounts for each of those years in *Atropos*. This could give an approximate correction factor of x1.8 and x2.5 for each respective year if replicated across the rest of the country. A total for 2006 from Sussex of 518 (C. Pratt, pers comm.) compares to 217 in the *Atropos* accounts, an approximate correction factor of x2.4. However, these 'corrected' figures are not used in the analyses below.

Finally, to gather some insight into recording effort, total numbers of recorders contributing to each immigration report can be obtained from the accounts for the years 1978 to 2004 (the figures not yet being available for 2005 and 2006). A slight change occurred in this collation from the early 1990s, so that in a few cases one individual could have provided data for two or more recorders. Therefore totals from that time can be slight under-estimates. However, again this is not thought to have altered the overall result significantly.

Each of these annual totals, i.e. total number of records, total number of inland records and total number of recorders are given in Table 1 (and exclude records from the Channel Islands, Ireland and the Isle of Man).

Results

From Table 1, 1988 would appear to have been a pivotal year, with this species being recorded in three figures in this country for the first time in any one year. This happened again in three years during the 1990s, and from 2000 onwards has occurred in five out of the last seven years (with over four figures in two of these years). 2006, with a minimum of just over 6200 individuals (and possibly 2.5 times that figure), was clearly exceptional, with probable local breeding (observed at two sites, but possibly more widespread) bolstering late summer/autumnal records and contributing to this total. Figure 1 illustrates that the annual totals of the Scarce Bordered Straw seen in Britain are increasing exponentially with time, whilst the frequency of years with low counts is declining.

Table 1: Number of records of Scarce Bordered Straw *Helicoverpa armigera* and recorders for each year from 1969 onwards.

Year	Total no. of records	Total no. of inland records	Total number of recorders
1969	15	5	-
1970	4	1	-
1971	1	0	-
1972	8	1	-
1973	8	1	-
1974	1	1	-
1975	4	1	-
1976	6	1	-
1977	4	0	-
1978	13	5	87
1979	3	0	77
1980	6	1	156
1981	1	0	105
1982	14	2	230
1983	20	3	321
1984	1	0	129
1985	14	7	127
1986	0	0	105
1987	23	3	122
1988	119	9	146
1989	22	0	167
1990	43	1	299
1991	25	0	76
1992	119	17	117
1993	1	0	58
1994	49	1	88
1995	54	2	127
1996	336	21	142
1997	36	3	75
1998	189	5	96
1999	65	3	96
2000	126	10	313
2001	62	2	110
2002	51	0	221
2003	1022	34	166
2004	366	9	165
2005	216*	-	-
2006	6210*	-	-

Key: * Minimum totals

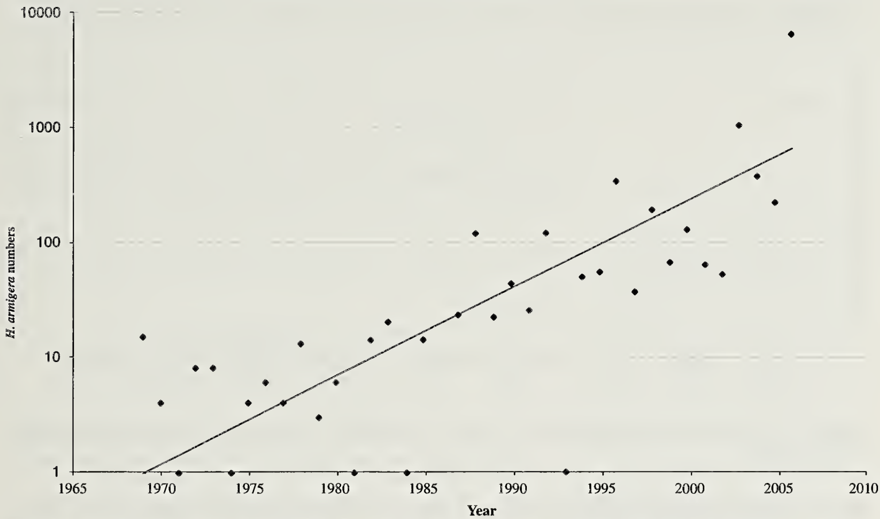

Figure 1. The annual total number of records of Scarce Bordered Straw *Helicoverpa armigera* in Britain between 1969 and 2006.

Note: The data are plotted against a logarithmic axis to accommodate the wide spread in values.

However, could this rise be put down to an increase in recorder effort? The contributors total to the annual immigration account (i.e. not just those recording Scarce Bordered Straw) in *Entomologists Rec. J. Var.* is probably the best indication of this (see Table 1). In poor years, with fewer species of immigrants and often lower counts of more regular immigrant species, it may be expected that there would be fewer contributors compared to more favourable immigration years. Examination of the total number of recorders shows a wide variation from a low of just under 60 in 1993 to over 300 in 1983 and 2000. 1993 was indeed considered a poor year for immigrants (Skinner & Parsons, 1997), with 1983 a year "of abundance" (Bretherton & Chalmers-Hunt, 1984). However, 2000 was described as "average with most of the regular migrant butterflies and moths appearing in neither high nor low numbers" (Skinner & Collins, 2004), although it was a bumper year for the Clouded Yellow *Colias croceus* (in common with 1983), which could have contributed to this high count of recorders. 1990 was another popular year with just under 300 contributors and it was an "exceptionally interesting year" for immigrants (and the best total for Clouded Yellow *C. croceus* since 1983) (Chalmers-Hunt & Skinner, 1992). However, although counts of the Scarce Bordered Straw were on the higher side for each of those years (1983 – 20; 1990 – 43 and 2000 – 126), just over half the number of recorders in 2003 recorded over 1000 individuals, with just under half recording the 1990s high of 336 individuals in 1996.

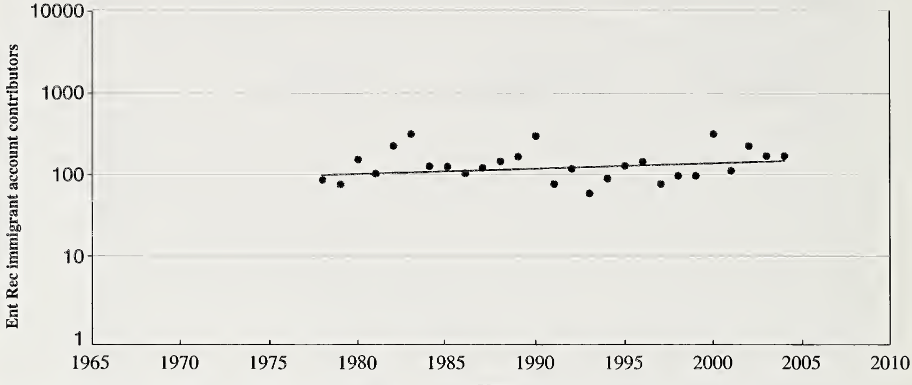

Figure 2. The number of contributors to the *Entomologist's Record* immigration account from 1978 to 2004.

Note: The data are plotted against a logarithmic axis to accommodate the wide spread in values.

Figure 2 plots the number of recorders who contribute immigrant records to the *Entomologist's Record* account between 1978 and 2004. The number of recorders who contribute records ranges between 58 and 321 and the variation in contributor numbers from year to year is significant. However, the trend shows only a very slight increase over the twenty-seven year period as a whole. A comparison between the graphs in Figures 1 and 2, which use the same axes, clearly indicates that the trend for Scarce Bordered Straw numbers is independent of the contributor numbers.

Could the apparent rise be a reflection of a trend in recorders specifically targeting immigrant moths at coastal localities? Inland records just missed double figures in 1988, reaching double figures for the first time in 1992 and again on three further occasions since that date (and almost certainly so in each of the last two years, although the data are not yet available).

Figure 3 shows that the trend for inland records increases from about 1981 onwards. Although it increases at a shallower rate than that of the overall national counts (Figure 1), the addition of 2005 and 2006 totals are likely to align the gradient of the slope more to that of the overall national count. This indicates that not only is the moth becoming genuinely more frequent, but that it is also penetrating inland more regularly. It would, therefore, seem unlikely that this overall increase in numbers of the Scarce Bordered Straw is down to recorder pressure or recording behaviour.

What is driving this change?

On the basis that annual immigrant record contributor totals and annual UK Scarce Bordered Straw totals are independent, a different factor must be responsible for the dramatic upsurge in the frequency of sightings of this moth in the UK in recent

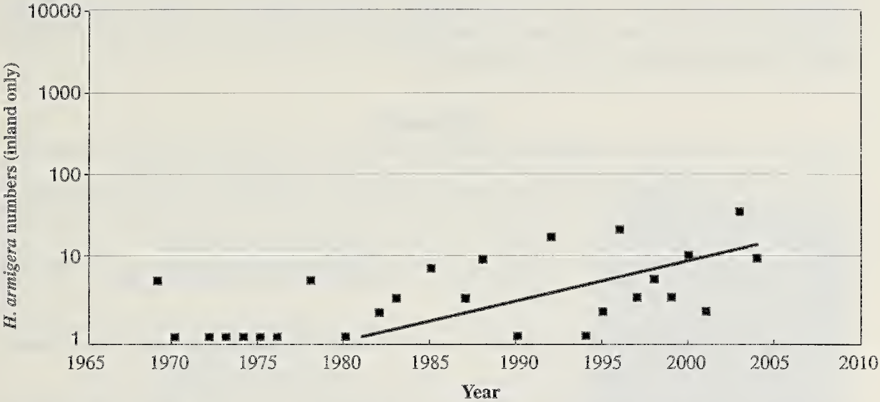

Figure 3. The annual total number of records of Scarce Bordered Straw *Helicoverpa armigera* in Britain away from coastal counties between 1969 and 2004.

Note: The data are plotted against a logarithmic axis to accommodate the wide spread in values. Trend line plotted from 1981-2004 only.

years. Davey (2007) examines the effect that increasing UK and global temperatures may be having on the frequency of weather types that bring immigrant Lepidoptera to the UK and the impact on trends in new immigrant species to the British Isles over time. He concludes that the warming trend is increasing the frequency of immigrant-bearing airflows from mainland Europe and north-west Africa, increasing the number of opportunities available to potential new immigrant species to reach the UK, and more generally promoting the northward movement of Lepidoptera across Europe. Undoubtedly, movements of the Scarce Bordered Straw are being influenced by this changing trend.

Conclusions

There has clearly been a phenomenal increase in this potential pest species over time, both in coastal counties and inland, with the larva being found in the wild in each of 1997, 1999, 2003 and 2006. This increase would seem to be independent of recording pressure or recording behaviour and is most likely to be due to climate change. If this increasing trend continues then there may be further concerns over its potential pest status and calls could be made for its control. Depending on the nature of any control, this could have implications for many of our native species.

Acknowledgements

The interest in this species was stimulated by a conversation on this species between MSP and Dr David Sheppard of Natural England. Thanks are due to Sean Clancy for providing an advance sight of the collation of the data for the immigration of the Scarce Bordered Straw to the British Isles in 2004. Thanks are also due to Barry

Henwood for a preview of his *Entomologist's Gazette* paper, to Colin Pratt both for comments on an earlier draft and for providing the 2006 Sussex total, and to Martin Warren for commenting on an earlier draft.

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As reported previously (*Ent. Rec.* **118**: 193) during late summer 2006, Oak Processionary moths were found breeding at three separate sites in west London. This species is a major forest pest in continental Europe and can cause severe allergic reactions in humans. Due to the timing of the discoveries it was not possible to eradicate the colonies, and larvae have again been found in considerable numbers (mainly in relatively localised areas) in 2007. A programme of monitoring, control and eradication is ongoing, co-ordinated by Forest Research and local authorities. Entomologists in west London and adjacent areas of London, Surrey, Berkshire, Buckinghamshire and Middlesex in particular can help to pinpoint any further colonies by reporting all sightings/captures immediately. Please report all possible sightings of adults or larvae anywhere in the UK to Christine Tilbury, at Forest Research (telephone 01420 22255 or by e-mail to christine.tilbury@forestry.gsi.gov.uk). Control/eradication should be carried out by qualified personnel and close contact with possible nests and larvae should otherwise be avoided. Further information is available at http://www.forestresearch.gov.uk/fr/INFD-6URJCF.

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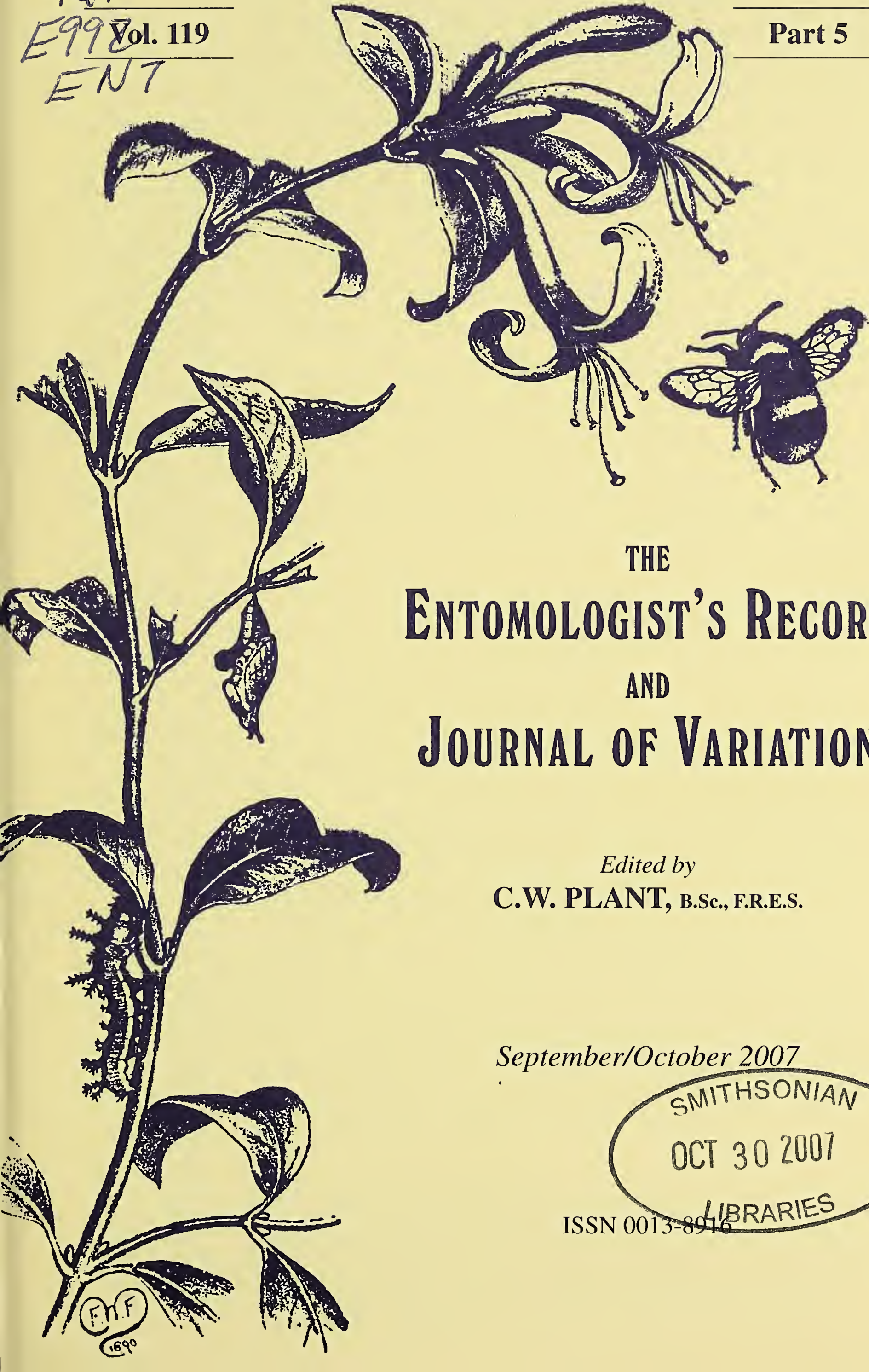

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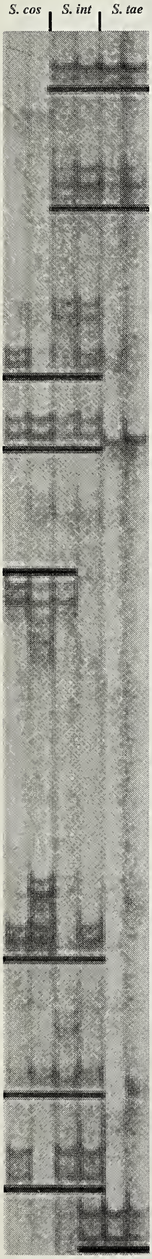
Confirmation of the hybrid status of the Autumnal Snout *Schrankia intermedialis* Reid (Lep.: Noctuidae)



As reported in Gould (2005. *Ent. Rec.* **117**: 139-140), the light trap at Yarner Wood (O.S. grid reference SX 786789) caught several specimens of *S. intermedialis* during 2003 and 2004. Originally thought to be a good species, *S. intermedialis* has more recently been considered to be a rare hybrid between the White-line Snout (*S. taenialis* Hb.) and the Pinion-streaked Snout (*S. costaestrigalis* Steph.) on the basis that it has only occurred at sites where the other two species occur commonly and, as suggested by its specific epithet, it is intermediate in form between them. However, until recently its exact status was uncertain.

In the hope that this taxonomic conundrum might be solved, samples of the Yarner Wood moths, along with specimens of the two other species, were given to Sarah Anderson of The Open University. For her PhD, Sarah had been using molecular markers to study populations of the Garden Tiger moth, *Arctia caja* (L.). This work had led her to develop new molecular markers (Anderson, S. J., Gould, P. & Freeland, J. R., 2007. Repetitive Flanking Sequences (ReFS): novel molecular markers from microsatellite families. *Molecular Ecology Notes*. **7**. 374-376.). DNA was extracted from two legs of each of the three *Schrankia* 'species'. Once this had been run through an acrylamide gel the overall genetic similarity within and between species was calculated as the number of shared bands.

Data from the markers revealed 16-23 unambiguous bands for each individual. These showed that *S. costaestrigalis* and *S. taenialis* are genetically distinct, but that *S. intermedialis* is genetically intermediate, which is consistent with its morphological characteristics (Anderson *et al., loc. cit.*). In addition to this Sarah also compared the mitochondrial haplotypes (particular forms of the DNA sequence that are closely linked and usually inherited as a unit) of the same six individuals used in the study. This revealed that *S. intermedialis* shared haplotypes with both of the parent species, whereas the haplotypes of the other two species diverged (Anderson *et al., loc. cit.*). Although based on a relatively small sample size this result shows that ReFS can differentiate between even closely related species.

Figure 1. Portion of silver-stained polyacrylamide gel showing bands produced by ReFS markers. The first two lanes are two *Schrankia costaestrigalis* individuals (*S. cos*), the middle two lanes are two *Schrankia intermedialis* individuals (*S. int*) and the last two lanes are two *Schrankia taenialis* individuals (*S. tae*). The horizontal black lines indicate some of the bands shared between the hybrid and one of the parental species.

Many thanks to Sarah Anderson and Joanna Freeland for finding the time to take on the hard work involved in this project.— PHILIP J. L. GOULD, Co-ordinator of the Rothamsted Insect Survey Light-trap Network, Plant & Invertebrate Ecology Department, Rothamsted Research, Harpenden, Hertfordshire AL5 2JQ (E-mail: phil.gould@bbsrc.ac.uk).

Could the Spanish Character *Cilix hispanica* De-Gregorio, Torruella, Miret, Casas & Figueras, 2002 (Lep.: Drepanidae) be overlooked in the British fauna?

Cilix hispanica was described as new to science in 2002 from Iberia and the Balearic Islands (De-Gregorio, Torruella, Miret, Casas & Figueras, 2002. *Bol. Sociedad Entomológica Aragonesa* **30**: 33-36.). It was added to the French fauna by Mazel, Ylla & Macia, (2002. *Revue de l'Association Roussillonnaise d'Entomologie* **11** (3): 81-87). An examination of MM's collection during a visit by CWP revealed examples from MM's garden trap taken on 12.viii.2000, 21.ix.2001, 22.viii.2007 and 14.ix.2007: these represent the first records for the Tarn and the first two pre-date the original discovery of the species. A further example in GW's trap (a male dissected by CWP) confirms its presence in Landes. Drawing together other data available to us, we are able to offer the tentative distribution in Figure 1.

Given that the moth has rested undetected amongst specimens of the Chinese Character *Cilix glaucata* until as recently as five years ago, there is no reason to suppose that the true distribution in France is as southern as the map indicates and so we pose the question: *Is the Spanish Character lurking undetected in Britain?* The adult is illustrated by Leraut (2006. *Moths of Europe*. N. A. P. Editions); drawings of the distinctive male genitalia are presented as well as for *Cilix glaucata* and *C. algirica* (though, regrettably, *C. asiatica* Bang-Haas, 1907, which is resident in Bulgaria, is omitted). — COLIN W. PLANT, 14 West Road, Bishops Stortford, Hertfordshire CM23 3QP (E-mail: cpauk1@ntlworld.com), MICHAEL MARNEY, Graddé, 81140 Campagnac, France (E-mail: marney.michael@wanadoo.fr) & GRAHAM WENMAN, La Bergerie, 40240 Creon d'Armagnac, France (E-mail: gjwenman@aol.com).

Figure. 1. Known distribution of *Cilix hispanica* in France, at September 2007

BUCCULATRIX ULMIFOLIAE M. HERING, 1931 (LEP. : BUCCULATRICIDAE) RESIDENT IN ENGLAND

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Abstract

Bucculatrix ulmifoliae M. Hering, 1931 (Lep.: Bucculatricidae), is added to the British list of Lepidoptera. The moth, leaf-mine, larva and cocoon are described and illustrated in colour; the male genitalia are illustrated; the life history is outlined and discussed. Comparison is made with *B. ulmella* Zeller whose adult, in colour, and male genitalia are illustrated and with *B. albedinella* Zeller whose adult, larva and leaf-mine are illustrated in colour.

Introduction

A visit to Farnham Park, Surrey on 15 October 2006 to make records in a relatively poorly recorded tetrad, resulted in a surprising discovery. We came across a row of a species of tree that none of us recognised, and on its leaves were many mines of what was apparently a *Bucculatrix* species. Soon some larvae and cocoonets (moulting-cocoons) were found which were clearly of that genus, and it became obvious that the trees were a species of *Ulmus* when we found mines of *Stigmella ulmivora* (Fologne), *S. viscerella* (Stainton), *Phyllonorycter schreberella* (Fabricius) and *P. tristrigella* (Haworth). The form of the *Bucculatrix* mines was quite different from that of *B. albedinella*, the only species of the genus known to feed on elm in this country, so we were hopeful, nay confident, that we had found a new species to the British Isles.

JP reported our find to the Site Manager who told us that the trees were *Ulmus* 'Sapporo Autumn Gold' which is a hybrid of Siberian Elm, *U. pumila,* and Japanese Elm, *U. japonica* and known to be resistant to Dutch Elm Disease. The row was planted in the 1980s. Interestingly, there were no *Bucculatrix* mines on English Elm, *Ulmus procera*, which was growing within a few metres of the hybrid elms.

Although we saw several hundred *Bucculatrix* mines, relatively few larvae were found, so it was clearly toward the end of the larval period. Within a matter of a few days the larvae had spun ribbed cocoons, typical of the genus, and moths emerged from 8 April 2007. Dissection of the first to emerge, which was a male, showed that the species is *Bucculatrix ulmifoliae* M. Hering, the genitalia agreeing reasonably well with the illustrations of that species in Seksyaeva (1981) and Mey (1999), though there are minor differences which could be explained by the different methods of mounting.

In 2007, visits to the site were made on 19 May and 12 June when no mines or adults were found after several hours of careful searching. However, on 27 June we found a few tenanted and several vacated mines, two larvae in cocoonets, three feeding externally and one cocoon spun on a leaf of the foodplant, thus confirming the species to be bivoltine here, as on the Continent. On this visit we also found tenanted and vacated mines of *B. albedinella* and one larva feeding externally on the hybrid elm.

Bucculatrix ulmifoliae **M. Hering, 1931**

Bucculatrix ulmifoliae M. Hering, 1931 *Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz* **41**: 529

Bucculatrix caspica Puplesis & Sruoga, 1991, was formally synonymised with *B. ulmifoliae* by Anikin *et al.* (2004) following the suggestion by Mey (1999), but Mey qualified his suggestion by saying: 'Future studies have to show if *B. caspica* represents a distinct species.' It is unclear on what evidence Anikin *et al.* reached their conclusion, because the drawing of the forewing of *B. caspica* in Puplesis *et al.* (1991) differs significantly from *B. ulmifoliae* in that it totally lacks the large dorsal spot which is such an obvious feature in the forewing of the latter. The male genitalia also differ in the shape of the uncus lobes which are shown to be broader and stumpier in *B. caspica*, and in the form of the aedeagus which appears to lack the nipple-like projections on the shaft and the pronounced bend before the apex which are so characteristic of *B. ulmifoliae*. Furthermore, the larval mines of *B. caspica*, all of which were found on *Ulmus carpinifolia* (now *Ulmus minor* ssp. *minor*), are described as being 18-20mm in length and uncontorted at the start, whereas the longest mine of *B. ulmifoliae* we found was about 15mm and the beginning of the mine is always contorted.

Description of imago (Plate F, Fig.1 & 2)

The moth is extremely similar to *B. ulmella* (Plate F, Fig. 3), the main difference being the less extensive black suffusion of the forewing markings in *ulmifoliae*, thus giving the latter a paler appearance. *B. albedinella* differs by its larger wingspan, white ground colour and different forewing markings (Plate F, Fig. 4).

Wingspan 6–7mm. Head with vertical tuft whitish buff at sides, reddish brown centrally; frons shining white; eyecaps whitish buff, tips of scales dark fuscous or black giving a speckled appearance; antenna pale ochreous, sharply barred dark fuscous or black above except terminal two to four segments. Thorax and tegulae similarly coloured and speckled. Forewing with ground colour whitish buff, suffused reddish brown toward base; a reddish brown suffused spot on costa at one third; another rather larger and mixed dark fuscous or black at two thirds; another reddish brown before apex extending toward tornus and inwardly to discal area; a black and reddish brown mixed spot on dorsum at one half with some raised black scales on its inner side; the whole wing with scales tipped dark fuscous or black giving a speckled appearance; cilia pale ochreous buff beyond a line of dark tipped scales. Hindwing and cilia ochreous grey. Legs ochreous buff, tarsi banded dark fuscous or black. Abdomen dark grey above, paler beneath, anal tuft in male ochreous buff. This description was made from the first brood specimens. Moths of the second, summer brood (Plate F, Fig. 2) are generally rather paler but with similar forewing markings.

Plate F, Fig. 1. *Bucculatrix ulmifoliae* M. Hering 1931; first brood *ex larva* Farnham, Surrey 19.x.2006.

Plate F, Fig. 2. *Bucculatrix ulmifoliae* M. Hering 1931; second brood *ex larva* Farnham, Surrey 27.vi.2007.

Plate F, Fig. 3. *Bucculatrix ulmella* Zeller, 1848; *ex pupa* Great Chattenden Wood, Kent 6.iii.2002.

Plate F, Fig. 4. *Bucculatrix albedinella* Zeller, 1839; *ex pupa* Portsmouth, Hampshire 20.ix.1996.

Genitalia

Male. (Fig. 1) Uncus wide, terminating in two lobes, the space between them a simple U-shape; valvae somewhat bulbous, tapered to the apex but not abruptly so; aedeagus moderately long, abruptly bent at 90° below the tip, and with two nipple-like projections on posterior half of shaft which is gently curved on its long axis.

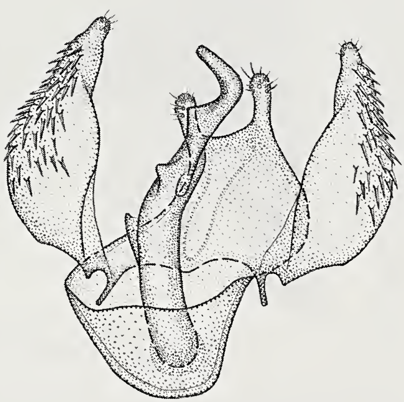

Figure 1. *Bucculatrix ulmifoliae* M. Hering 1931; male genitalia.

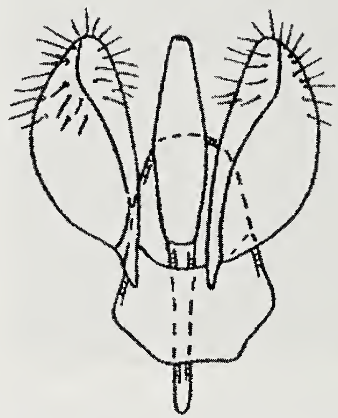

Figure 2. *Bucculatrix ulmella* Zeller, 1848; male genitalia (after Medvedev).

Female. Ovipositor long and conical and with poorly differentiated papillae anales; ostium simple, rather transverse; ductus narrow, without sclerotised areas; bursa with a signum consisting of many serrate stripes, as in other *Bucculatrix* species. The ovipositor differs in structure from all other British species except *B. albedinella* and *B. thoracella* (Thunberg), and may be an adaptation to allow it to position the egg between the rather long hairs in the angle formed by the midrib and one of the main veins on the underside of the leaf. The tip of the ovipositor is visible in set specimens without the need to brush away scales.

Superficially *ulmifoliae* most resembles *ulmella*. The male genitalia are quite different, with *ulmella* having no developed uncus and with reduced valvae (Fig. 2). The aedeagus of *ulmella* is straight and shaped like an Indian club with the broader section posteriorly. The female of *ulmella* has a "normal" ovipositor with well-developed papillae anales and is not visible in set specimens without brushing away scales. Illustrations of the genitalia of all the British species of *Bucculatrix*, except *ulmifoliae*, may be found in Svensson (1971).

Biology

Ovum

Laid on the underside, close to the midrib, usually at the angle with a major vein, of a leaf of various species of elm; in this country on *Ulmus pumila* × *japonica*. Continental literature mentions European White Elm, *U. laevis*, (Anikin *et al.*, 2004), *U. campestris* (Mey, 1999) which is a synonym of both Wych Elm *U. glabra* and English Elm *U. procera*, so could refer to either species, English Elm, *U. procera*, (S.E. Whitebread, *pers. comm.*), Dutch Elm, *U.* × *hollandica*, (Šefrová, 2005).

Larva (Plate G, Fig. 1)

All parts rather translucent pale yellow, appearing pale green when feeding, due to the gut and colour of the leaf showing through; prothoracic plate with a scattering of slightly darker yellow spots of various shapes. The larva of *B. albedinella* (Plate G, Fig. 2) is dull green dorsally, pale yellow laterally and ventrally, and with broad, irregular and interrupted, dark purplish brown paradorsal lines; when still in its mine it has characteristic blackish, oval ventral spots on each abdominal segment – rather in the fashion of some *Ectoedemia* species.

Larval mine (Plate G, Fig. 3)

Starts as a contorted gallery, filled with black frass, in the angle between the midrib and a major vein, usually forming a small blotch where it has doubled back on itself; later it is straight, usually along a vein, before turning away at an angle, with broken linear black frass except for the final 2–3mm, the total length being 11–15mm. The exit-hole is on the underside of the leaf, and the larva then feeds externally on the underside eating out windows. The mine of *B. albedinella* (Plate G, Fig. 4) on the same foodplant is less conspicuous than that of *ulmifoliae* and has between two and four small frass-free diverticula leading off the main track.

Pupa

Dark blackish brown, in a sooty grey-black cocoon (Plate G, Fig. 5), without palisade, spun on a leaf or the larval container in captivity; in the wild, on a leaf, on the bark of the tree or, most probably, on detritus on the ground. The cocoon of *B. albedinella* differs from all other *Bucculatrix* species in lacking the usual longitudinal ridges.

Imago

In this country, in captivity, moths emerged in April and May, and again in July. On the Continent it is found from May to August, in two generations (Anikin *et al.*, *loc. cit.*).

Distribution

Thus far known in this country only from Farnham, Surrey. On the Continent it occurs in eastern Germany, Austria and Italy eastwards to Poland and Romania (Baraniak, 1996), Switzerland (Sauter & Whitebread, 2005) and Russia (Anikin *et al.*, *loc.cit.*) where it does not occur east of the Ural Mountains (S.Yu. Sinev, *pers.comm.*)

Plate G, Fig. 1. *Bucculatrix ulmifoliae* M. Hering 1931; final instar larva.

Plate G, Fig. 2. *Bucculatrix albedinella* Zeller, 1839; final instar larva.

Plate G, Fig. 3. *Bucculatrix ulmifoliae* M. Hering 1931; larval mines in leaves of *Ulmus pumila* × *japonica*.

Plate G, Fig. 4. *Bucculatrix albedinella* Zeller, 1839; larval mines on *Ulmus pumila* × *japonica*.

Plate G, Fig. 5. *Bucculatrix ulmifoliae* M. Hering 1931; cocoon on leaf of *Ulmus pumila* × *japonica*.

Discussion

It would seem probable that *B. ulmifoliae* was imported into this country with the hybrid elms, possibly in cocoons on the bark or branches, but it has not been possible to find out whence the trees came. A large number of the trees were planted, in a line nearly 1km long, in Farnham Park, thus providing ample space to support a flourishing population of this species new to the British Isles, and also most of the other elm-feeding leaf-mining British species of microlepidoptera. *B. ulmifoliae* should be allocated the Log Book number 274a on the British list.

Acknowledgements

Grateful thanks are due to the following: Ian Thirlwell (Portsmouth) for the photographs of the mines and for much help in preparing the digital images; Martin Honey (BMNH) for photographs of the imagines; Ron Hills (Farnham) for his assistance in identifying the species of elm and for his willing co-operation in agreeing our suggestions for conservation; David Agassiz (Gravesend) and Klaus Sattler (BMNH) for looking up and/or photocopying documents for reference; Sergey Sinev (St Petersburg) for information on distribution.

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Coleophora squamosella Stainton (Lep.: Coleophoridae), new to the Hertfordshire (VC20) county list

Examination of a stored collection of microlepidoptera from the Rothamsted Insect Survey light trap "Harpenden IV" (site 594: O.S. grid reference TL 153133) has led to the discovery of a new species for the county list: a single *Coleophora squamosella*, caught on the night of 10/11 August 2002.

This individual was well out of its normal range of central southern and south-eastern England and the Breck district of East Anglia (Emmet, 2002. *The Moths & Butterflies of Great Britain & Ireland* **3**. Harley). *C. squamosella* feeds on Blue Fleabane *Erigeron acer*, a species confined to bare ground or thin grassland and most often on calcareous soils. The occurrence of *C. squamosella* within its range therefore follows chalk geology, in line with the foodplant. Much of Hertfordshire is non-calcareous, but Harpenden sits on a small outlier of chalk, and Blue Fleabane does occur in the area, although the nearest known site is some miles from where the moth was caught (Trevor James, pers. comm.). It is quite likely that the foodplant is established closer to the light trap and it could well be that *C. squamosella* is therefore an over-looked resident.

Thanks to Colin Plant, the Hertfordshire and Middlesex Moth Recorder, for providing me with some details regarding this species, to Brian Goodey for the dissection and identification of the specimen and to Trevor James, the Hertfordshire Botanical Recorder, for providing information on the foodplant.— PHILIP J. L. GOULD, Co-ordinator of the Rothamsted Insect Survey Light-trap Network, Plant & Invertebrate Ecology Department, Rothamsted Research, Harpenden, Hertfordshire AL5 2JQ (E-mail: phil.gould@bbsrc.ac.uk).

Ectoedemia heringella (Mariani), (Lep.:Nepticulidae) – a first record for North Hampshire (VC12)

Since the discovery of *Ectoedemia heringella* in London in the 2001 it has been establishing itself in London and is now starting to spread into the UK with mines being found recently in Surrey and East Anglia. Its foodplant, Evergreen Oak *Quercus ilex* tends to be found in parklands, ornamental gardens and around coastal areas and it is these areas which need to be searched to establish the presence of this leaf miner. In North Hampshire there is a small area of such trees near to the M3 motorway in Fleet and it was these that I searched on a regular basis for *heringella.* I found mines on 11 February 2007 in this location, which John Langmaid confirmed as the first for VC12. Interestingly, at present, the colony is densest by the side of the road closest to the M3 motorway, with a corresponding decrease as one passes away from this. Perhaps this busy motorway, with stationary traffic in some rush hours, provides a dispersal route for this leaf miner?— ROB EDMUNDS, 32 Woodcote Green, Calthorpe Park, Fleet, Hampshire GU51 4EY.

THE DISTRIBUTION, ECOLOGY AND CONSERVATION OF THE LUNAR YELLOW UNDERWING *NOCTUA ORBONA* (HUFNAGEL) IN THE BRECK DISTRICT OF NORFOLK AND SUFFOLK

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Abstract

Noctua orbona (Hufn.) (Lep.: Noctuidae) was studied in the Brecks district of Norfolk and Suffolk from 2000 to 2006. The moth was present in eight 10-kilometre map squares; this represents nearly 25% of the UK population. Other threatened Breckland moth species are also able to thrive in sites affected by *N. orbona* and the conservation of this species is probably beneficial to the wider Breckland assemblage. Observations are made on future management of sites for this species.

Introduction

The distribution map for the Lunar Yellow Underwing *Noctua orbona* (Hufnagel) in Bretherton, Goater & Lorimer (1983) indicates that this species had historically been found widely, although locally, over Britain, from the south coast of England to northern Scotland. At that time, Bretherton et al (*loc. cit.*) suggested that the species was 'decreasing everywhere and is now absent from many places where it was once plentiful'. Further to that they added that it 'is probably now seen most often in the Breck district of East Anglia'. In 1999, an Action Plan was produced for the Lunar Yellow Underwing (UK Biodiversity Group, 1999) as part of the UK Biodiversity Action Plan (UK BAP). By this time, although the species' range was broadly similar to that given by Bretherton et al (*loc. cit.*), it was clear that a further decline had occurred. During the period 1999 to 2004, when survey for the species was actively encouraged as part of the UK BAP, it was recorded from 33 Ordnance Survey ten-kilometre squares nationally, compared to 50 ten-km squares in the period 1980-c.1999 (Parsons *et al*, 2005). Additionally, its distribution had shrunk, with the species primarily being found in the Brecks, the Suffolk coastal Sandling heaths, very locally in parts of southern England and on the Wirral. The Brecks, being a large area, appeared to be a national stronghold for the species. The total area of the Breck has been given a range of values, depending upon criteria and date. However, the area agreed by the Breckland Committee of 1966 (a grouping of the Nature Conservancy, other conservation organizations and wildlife experts) is a reasonable average with an area of 960 square kilometres (or 9.6 ten-km squares).

Skinner (1998) briefly summarised the knowledge of the species' autecology, giving the larva as occurring from October to April, overwintering whilst small, feeding on fine grasses and small herbaceous plants, stating that "Mortality is high in the young larvae due to parasitism". Waring & Townsend (2003) noted that the species is found on dry, sandy, heathy or calcareous sites in open situations, both on the coast and inland. The adult moth flies from late June to September, although it aestivates shortly after emergence, re-appearing in late August and September.

Since 2000 Butterfly Conservation has contracted one of us (GMH) to produce a register of the Breckland sites for the species, to undertake autecological studies and to survey current and former sites, concentrating on the larval stage, as well as to provide management advice to landowners and site managers. This article summarises this work and the progress towards the conservation of the Lunar Yellow Underwing in the Brecks.

Distribution in The Brecks

Over the course of the seven years of survey covered by this project, eight 10-kilometre squares have been shown to be occupied by the Lunar Yellow Underwing; this represents nearly one quarter of the current UK distribution, demonstrating the importance of the Breckland District to this species in this country. This distribution in Breckland is shown in Figure 1.

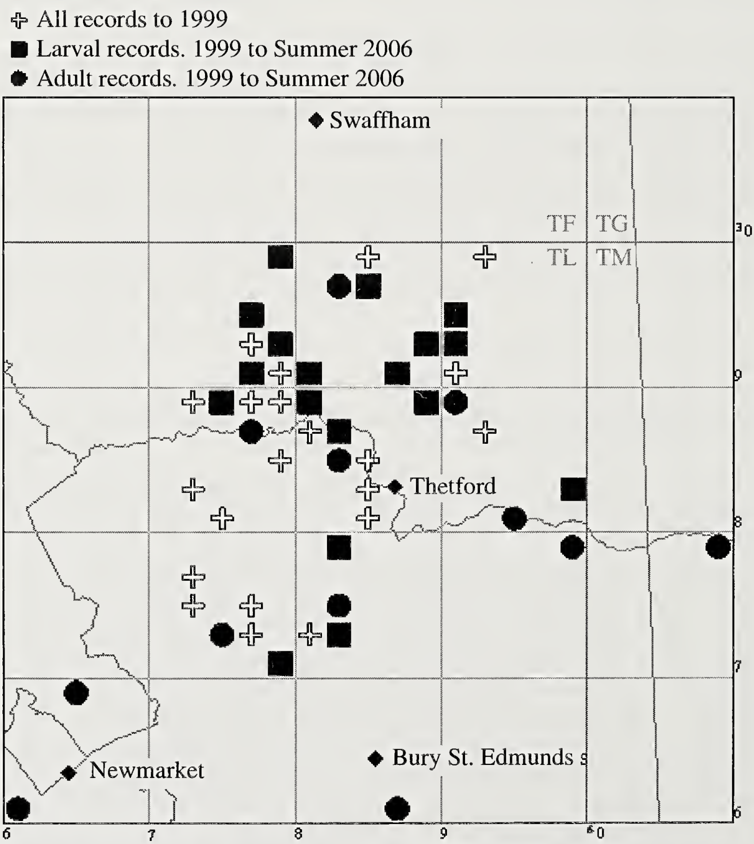

Figure 1. The distribution of the Lunar Yellow Underwing *Noctua orbona* in the Brecks and surrounding area.

Field observations

Annual larval surveys since 2000 have recorded over 1,100 larvae, all found between 5 November and 11 April. As a result of earlier surveys, most surveying now takes place from November to early March, depending on weather conditions. In the Brecks, young larvae are solely found associated with tufts of fine grasses on dry, well-drained soils, A range of soils are used: acid sandy soils, acid to neutral soils and calcareous soils, all without a build up of leaf litter. Larvae are found in areas where the dominant grass is Sheep's Fescue *Festuca ovina*, Brown Bent *Agrostis vinealis* or young plants of Wavy Hair-grass *Deschampsia flexuosa*, the larvae being usually found up on the dead grass stems and when found feeding only at the tips of these grasses. Habitat types include Breck grassland and heathland, along forestry rides, fire breaks and in areas of forest restocking up to seven years since planting, where trees have been slow to close canopy.

Management of these Breckland sites ranges from annual swiping (tractor powered heavy rotary blades), forage harvesting or mowing, to sites that are lightly or heavily grazed by sheep, sites that are heavily grazed by rabbits, to sites which have no apparent management. Rabbits are present on all the larger Breck heaths supporting Lunar Yellow Underwing. Table 1 summarises the total number of Lunar Yellow Underwing larvae found during the course of the project since the 2001/02 survey. This illustrates that the moth is found over sites with a range of broad management types, however, it is important to note that the totals for each management type do not take into account several factors that may influence numbers, such as the weather conditions during sampling or the intensity of management, i.e. heavily grazed or lightly grazed, low or high cut etc.

Not all Breckland management regimes are suitable for the moth, with, in general, the highest counts of larvae being found in areas where there is a mosaic sward, such as that produced by light grazing by sheep combined with disturbance by rabbits. Close swiping resulted in very few Lunar Yellow Underwing larvae being found. An example of this has occurred at Home Heath recently, whereas areas that were previously unswiped here supported more larvae in 2003. In recent years Forest Enterprise has cleared c.300ha of pine plantation for heath restoration over Thetford Forest, where the renovated grass heath at Cranwich mown by forage harvester resulted in larvae of the Lunar Yellow Underwing being found in good numbers on islands of fine-leaved grasses. At part of Brettenham Heath, where in conjunction with sheep grazing, the area is mown at a height of about 0.3metres to control Bracken *Pteridium aquilinum*, Lunar Yellow Underwing are found on the available raised grass tufts. Twelve SSSIs were studied where management has been undertaken to provide short turf and bare patches for the Stone Curlew *Burhinus oedicnemus*, also a UK BAP Priority (bird) species. Of these, seven supported the Lunar Yellow Underwing where there were enough grass tussocks left among the bare soil, but five supported no tufts and were unsuitable for the moth. One site, Horn Heath, visited in 2003, was grazed by cattle resulting in heavily trampled and closely grazed conditions unsuitable for Lunar Yellow Underwing. Two further sites that were heavily grazed by cattle were also thought, on examination of the turf, unlikely to support larvae.

Table 1. The total number of Lunar Yellow Underwing *Noctua orbona* larvae found from the autumn 2001/02 survey to 2006/07 survey by management type.

Principal management types	No. site visits	No. larvae found	Average number of larvae found	Range of no. of larvae found
Sheep-grazed	43	464	10.8	0 to 69
Rabbit-grazed	6	52	8.7	0 to 27
Sheep- and rabbit-grazed	6	116	19.3	0 to 59
Mown/swiped	18	80	4.4	0 to 26
Sheep-grazed plus mown/swiped	4	48	12	0 to 27
Sheep- and rabbit-grazed plus mown/swiped	2	28	14	10 to 18
Not grazed or mown/swiped (i.e. not obviously managed)	49	464	9.5	0 to 80*

* 80 is a high count for apparently unmanaged habitat, but in this case is the result of ground disturbance.

All other larvae found during this project have been identified, with the Yellow Belle *Semiaspilates ochrearia* and the Grayling butterfly *Hipparchia semele* being found, both local species. From this it has emerged that a negative indicator of suitability of sites for the Lunar Yellow Underwing is the presence of larvae of the Square-spot Rustic *Xestia xanthographa*. Although this species can be found in small numbers on sites supporting the Lunar Yellow Underwing, higher numbers indicate the site is usually unsuitable for the Lunar Yellow Underwing, as the grassland is generally denser, comprising coarser grasses. A good example of this was found at Thetford Heath during the autumn/winter of 2006/07 where higher numbers of Lunar Yellow Underwing were found on fine-leaved grasses with those of Square-spot Rustic being confined to the coarser grasses lower down the slope of the site. Contrastingly, a parallel transect at the same site across a heavily rabbit-grazed sward failed to produce any larvae.

Wild collected larvae of Lunar Yellow Underwing were also reared in captivity and several parasitoids have resulted from these, including species of the genera *Meteorus*, *Aleiodes*, *Glyptapanteles*, *Exetastes* and at least one species of Campopleginae (all det. Dr M. Shaw). One of these, *Glyptapanteles fulvipes*, is a generalist that parasitizes a range of low-feeding hosts that overwinter, in particular species of the genus *Noctua* and *Xestia* (Dr M. Shaw, pers. comm.). Other larvae died over winter as a result of probable viral infection and through the phenomenon of larvae withering away or shrinking through no obvious reason.

Observations in captivity

Oviposition

Three cages were set up in 2005 with clods of tufts of fine-leaved Breckland grasses. One female Lunar Yellow Underwing was placed in each cage in early September, although only one female produced eggs, these laid by mid September. A possible explanation why the other two females had not laid any eggs was that they had not paired by this time, perhaps indicating that they do not pair prior to aestivation. Six separate egg batches were laid on dead flowering heads of the previous years Sheep's Fescue at a height of between 10cm and 22cm above soil level. Egg batches ranged in size from 14 to 43 eggs and were laid in double strings on each stem, being attached by their bases, each egg standing at right angles to the stem. Eggs started to hatch from 12 days after being laid.

Larval behaviour

Larvae remained on and around the empty eggshells for up to 48 hours before dispersal into the grass tuft, and were extremely sensitive to disturbance. Nocturnal observations over the autumn/winter period recorded very few larvae (eight being the maximum observed), these usually sat up on a grass stem. Observations were made about an hour after dark nightly from the beginning of October, with larvae being seen from 12 nights per month (October) to every night of the month (January). Larvae were found on grass stems on cold nights with temperature down to –2.0°C and there appeared to be no true winter diapause. Larvae were relatively sedentary and did not appear to move between grass tussocks. Seven instars were observed, although there was considerable individual variation in the rate of larval development. No larva was seen to feed. Only 5% of the c.180 eggs reached the last instar, with observations on a sub-sample in indoor cages resulting in only a 7% survival by the first moult.

Over the course of the study some last instar wild collected larvae were taken into captivity and were offered Common Chickweed *Stellaria media*, this being eaten readily.

Pupation

Some captive larvae, both reared from egg and wild-taken, spun slight cocoons within a loose structure of dug grass-root tussocks, some placed horizontally and others upright. Other pupae were simply located in pressed-out chambers of grass-root pads.

Discussion

Implications for site management in the Brecks

From these studies optimal sites for the Lunar Yellow Underwing appear to be those on dry, well drained sites with plenty of uncut tufts from late summer to spring of the fine-leaved grasses Sheep's Fescue, Brown Bent and/or Wavy Hair-grass. From hundreds of observations, only a few larvae have been found associated in the wild

in the Brecks with other grasses, such as last instar larvae on cock's-foot *Dactylis*. It is possible, as observed in captivity, that larvae may feed on low-growing plants, such as Common Chickweed and Heath Bedstraw *Galium saxatile*, which can be found within the grass tufts. It also seems likely that larvae do not wander from tussock to tussock, probably completing their growth within just one tussock.

Management in open grassland or heathland sites should aim to leave standing dead flower heads of fine grasses at the time of egg-laying, in late summer/early autumn, and to allow a sward structure that retains tufts of fine-leaved grasses. Ground disturbance by rabbits appears advantageous in that, in conjunction with light sheep-grazing, this maintains a structurally varied turf with bare ground and grass tussocks. However, rabbit populations should not be so high that the land is completely bare. A high rabbit population, combined with a high sheep stocking rate will produce a very short sward which will be unsuitable for the Lunar Yellow Underwing.

As it seems likely that eggs are laid up on dead flowering heads of fine grasses they could be vulnerable to close mowing or grazing; livestock, especially sheep, should, therefore, be excluded in late summer/autumn until the eggs hatch. Grass tufts appear to be essential in providing cover for early instar larvae and all instars have the habit of sitting up on dead grass stems after dark (a common occurrence with other over-wintering grass heath larvae), and it is here that many may moult, making them potentially vulnerable to grazing animals. Consequently any subsequent grazing over the late autumn/winter period should be light, so that the tussock structure is retained. Grazing, however, will be needed on many sites to prevent them eventually becoming rank and invaded by scrub. One complicating and logistical issue is the availability of suitable grazing land to allow sheep flocks to be moved from site to site, so as to avoid overgrazing.

Management within forestry rides and some other sites, where grazing is not practical, involves mechanical intervention through mowing or swiping, the intention again being to retain areas of tufts of fine-leaved grasses. No management should take place during the time of oviposition. However, management can be undertaken after that period providing it does not leave a short turf, as the tufts are needed by the larvae for shelter. A minimum height of 15cm cut by swipe above the soil level in autumn is recommended in order to allow grass-feeding larvae to survive whilst at the same time controlling invasive woody growth. Removal of heavy herbage cuttings is desirable, although light mowings from the driest sites can be left *in situ*.

Disturbance resulting in bare ground can clearly be beneficial, this demonstrated by recently restocked forestry areas in Thetford Forest, bare soil being exposed by the mechanical tree-planting. In these restocked forestry areas strip application of herbicide along the planted trees is undertaken in winter aimed at preventing coarse grass and other competing vegetation growth. This, combined with the disturbance through the replanting process, allows fine-leaved grasses and Wavy Hair-grass to germinate, occupying at least part, if not all, of these sites, and providing a suitable, albeit temporary (prior to becoming shaded out) habitat for the moth. Again

disturbance such as that created through rabbits, can play a part in providing conditions suitable for fine-leaved grasses. One particular location at Santon, Thetford Forest, where Lunar Yellow Underwing larvae have been monitored regularly, became engulfed by regeneration of Broom *Cytisus scoparius*; Forest Enterprise staff cut and removed the growth which disturbed the soil and produced in the following winter the highest larval count to date.

Bracken invasion is a potential threat on some sites and herbicide treatment has been successfully undertaken in some areas. The larvae of Lunar Yellow Underwing can thrive under light bracken growth or under bracken weakened by spraying and can move into areas after spraying.

The Lunar Yellow Underwing as an indicator?

During the larval surveys, several other local Lepidoptera species have been located in habitats frequented by the Lunar Yellow Underwing, most notably the Yellow Belle and the Grayling butterfly. Light-trapping at sites supporting Lunar Yellow Underwing has also located a suite of Breckland species, such as the nationally threatened Marbled Clover *Heliothis viriplaca*, Grey Carpet *Lithostege griseata* and Tawny Wave *Scopula rubiginata*. The Basil Thyme Case-bearer *Coleophora tricolor*, another UK BAP Priority species, can occur on the same sites as the Lunar Yellow Underwing, and, providing grazing is not too heavy, the Lunar Yellow Underwing can even occur alongside the Stone Curlew. The Lunar Yellow Underwing is thus representative of a wide range of Lepidoptera species that are similarly associated with open Breck grassland. Consequently many other species will benefit from its conservation.

Examples of liaison with land owners and site managers

During the course of the project GMH has provided habitat management advice for the conservation of the Lunar Yellow Underwing on a wide range of Breckland sites, including the significant and substantial areas covered by Forest Enterprise and the Ministry of Defence (MoD). This advice has been given to successive forestry managers at Cranwich Camp SSSI, Norfolk, which was formerly heavily mown, to maintain a grass sward of moderate height (approx. 15cm) to benefit the Lunar Yellow Underwing and other species. Forest Enterprise and Natural England staff have also been advised of heights for swiping forestry rides and when to undertake this operation over a range of conservation sites, specifically for this species. Following the c.300ha clearance of the pine plantation by Forest Enterprise for heath restoration over Thetford Forest and with considerable management input, grass heath is now well established. Larvae of the Lunar Yellow Underwing have been found on three of these heaths, with other areas created adjoining nature reserves that support the species.

At one Norfolk Wildlife Trust managed part of Thetford Heath SSSI, advice has been aimed at reducing grazing levels by sheep and instituting moderate and time-controlled grazing. Following this shift in grazing, larvae of the Lunar Yellow Underwing were rediscovered on part of the reserve after a period of three years absence.

At Thorpe Heath SSSI, an MoD site and one known to support the Lunar Yellow Underwing, sheep grazing was introduced in 2002 following scrub clearance in an effort to maintain a grassy sward. Liaison here has been aimed at ensuring that conditions for the moth are retained and enhanced where possible. Bracken invasion has increased in the southern end of the heath and is a threat, with consideration now being given to its control by herbicide; fortunately larvae still remain numerous here, albeit on the reduced grassy areas.

Old Bodney Camp, Norfolk, an MoD site, which formerly had a fine Breckland turf but had become rank and unsuitable for Lunar Yellow Underwing, was rabbit-fenced, scrub removed and all ground vegetation closely cut by a forage harvester in 2006, with the herbage taken off site. A second cut is planned and it is hoped that this management will restore Breck grassland to this site.

Prospects for the Lunar Yellow Underwing within the Breck landscape

The Brecklands of Norfolk and Suffolk is a large area, with a wide range of land uses. Whilst, with appropriate management, existing core areas for the species should continue to survive, currently unsuitable sites may come in to more optimal condition for this species. The moth is a powerful flier, occurring widely over the area and sometimes in numbers locally, so it should have the capacity to colonise potentially suitable sites over time, which in turn should provide further opportunities to enhance the conservation of this species within the Brecks.

By engaging land-holders such as the Ministry of Defence (MoD) and Forest Enterprise management can be influenced over large areas. These two key land-holders in the Brecks together manage some 27000 hectares, of which grass heath and forest rides, newly re-stocked plantations and renovated heath occupy a substantial proportion of that total. Much of the MoD Training Area is open heath, well-suited to Lunar Yellow Underwing, and which has traditionally been sheep-grazed; currently this large area is managed by a grazier who has been keen to take advice on the needs of this moth, so that now a tufted sward remains throughout the year on an increasing area. Forest Enterprise has for some years followed a routine programme of ride management to suit the life cycle of Lunar Yellow Underwing and also practices similar mowing regimes on heathland renovation and conservation sites.

Conclusions

The Lunar Yellow Underwing is currently known to be resident in eight 10km squares within the Breckland area, with some very high populations revealed through this project's larval survey. Significant progress has been made in our understanding of the autecology of the Lunar Yellow Underwing in the Brecks, a national stronghold for the species. Monitoring of larval numbers continues on an annual basis encompassing a range of sites and an updated assessment of the condition of each site. Management advice has become an integral part of the project and the species has subsequently responded positively on a number of sites. It is hoped that this project will continue to make progress in conserving this characteristic Breckland species and other associated species.

Acknowledgements

This work was undertaken through Butterfly Conservation's *The Action for Threatened Moths Project* which is funded by English Nature (now Natural England). We would like to take this opportunity to thank all the land owners who have provided access to their sites, in particular Defence Estates for enabling access during periods of extensive military training, and to the all the site managers who have undertaken management for this Breckland speciality. We are also grateful to Dr Mark Shaw for the identification of and information on the parasitoids and to Arthur Copping for assistance with the identification of the grasses. Many hours have been undertaken surveying for the larvae by Mike Hall, Rafe Eley, Stan Dumican, Ray Upton and in particular Stephen Ward, and we are grateful for their unstinting support. In addition Nick Sibbett, Stephen Rothera and Ian Levett (all now Natural England) are thanked for their help with access to nature reserves and for liaison with site owners and managers. Butterfly Conservation would like to take this opportunity to thank Defra for funding of the single species factsheets. Thanks are due to Dr Martin Warren for comments on an earlier draft of this paper and to Les Hill (Butterfly Conservation) for the production of the map through MapMate. Finally, the now retired Nick Gibbons (formerly of Forest Enterprise) is to be thanked for his interest, encouragement and enthusiasm and for help in ensuring the conservation of this species within Forest Enterprise holdings as well as for the continued interest and management practices made by successor Forest Enterprise conservation staff.

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A fourth Hertfordshire (VC20) record of the Apple Pith Moth *Blastodacna atra* (Haworth) (Lep.: Agonoxenidae)

Recent inspection of a back-log of microlepidoptera collected from the Rothamsted Insect Survey light trap "Harpenden IV" (site 594: TL 153133) has revealed Hertfordshire's fourth record of *Blastodacna atra*, caught on the night of 19/20 July 2002. The other records are: the Lea Valley, 1900 (Boyd); Borehamwood, 1969 (Eric Bradford) and Datchworth 18 July 2005 (Steve Palmer).

Microlepidoptera are often over-looked when moth population declines are considered. However, as with the macrolepidopera populations described in Fox *et al.* (2006. *The State of Britain's Larger Moths*), microlepidoptera populations are probably also deteriorating, with several species becoming extinct within the last century (Parsons, 2003. The changing moth and butterfly fauna of Britain during the twentieth century. *Ent. Rec.* **115**: 49-66).

Blastodacna atra used to be much more common throughout the country and was often considered a pest in orchards. As with many other species, it has become increasingly difficult to find in the last 20 years (Colin Plant, pers. comm.), making it a good example of the poor state of many of Britain's microlepidoptera populations today. Its decline is probably due to several factors. Habitat destruction, a cause for the loss of many species, is certainly implicated in the decline of *B. atra* following the loss of orchards across the country as apple farming has declined. In addition, there is the problem of habitat fragmentation, where populations of *B. atra* would have become more and more isolated as orchards disappeared. Such isolated populations are more likely to die out due to chance local events, pesticide use, disease or climate change (Parsons, *loc. cit.*). Many gardens throughout the country still have apple trees and it is here that *B. atra* can still maintain a foothold. However, insecticide use in gardens is still high and no doubt effecting populations of this and many of our once common species.

Despite its decline, it is surprising that this moth has not been recorded more frequently in the county as, with the exception of Buckinghamshire to the west, every county on the boundary of Hertfordshire has recorded *B. atra*. Many gardens contain the food plant so it would be useful for apple trees to be examined more carefully. Feeding from August, throughout the winter and into June, larval presence in twigs is shown by a small heap of frass evicted from the entrance hole. Dead shoots and blossom and cracked bark are also indicators (Emmet, 2002. *The Moths & Butterflies of Great Britain & Ireland* **4(1)**. Harley).

Many thanks to Colin Plant, the Hertfordshire and Middlesex Moth Recorder, for providing me with the details of past county records and to Brian Goodey for the dissection and identification of the specimen.— PHILIP J. L. GOULD, Co-ordinator of the Rothamsted Insect Survey Light-trap Network, Plant & Invertebrate Ecology Department, Rothamsted Research, Harpenden, Hertfordshire AL5 2JQ. (E-mail: phil.gould@bbsrc.ac.uk).

EUPEODES GOELDLINI (DIP.: SYRPHIDAE) NEW TO BRITAIN, FRANCE AND IRELAND, WITH A KEY TO SEPARATE IT FROM RELATED ATLANTIC ZONE SPECIES

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Abstract

The hoverfly *Eupeodes goeldlini* Mazánek, Láska & Bičík, 1999 (Diptera: Syrphidae) is added to the lists for Britain, France and Ireland. Records of this species are provided, together with notes on its determination and biology and a key to the identification of the *Eupeodes* species known from Atlantic parts of Europe.

Introduction

Identification of European species in the hoverfly genus *Eupeodes* has never been easy and changes in nomenclature, coupled with segregation of additional species from among existing taxa, has made the process more confusing and not necessarily any easier! Until the appearance of Coe (1953) identification of these species was extremely unreliable. At that point in time *Eupeodes* species were not separated from *Syrphus*. Dusek and Láska (1973, 1976) made a significant advance in sorting out the European species, segregating them from *Syrphus* s.l. under the generic name *Metasyrphus*, describing new species and providing a key. It was subsequently shown that the generic name *Eupeodes* should be used, instead of *Metasyrphus*, and one of the erstwhile European *Metasyrphus* species was also hived off into its own subgenus or genus, *Lapposyrphus*. Throughout the period since publication of the papers by Dusek and Láska (*op. cit.*) there has been doubt and confusion over the identity of one widely distributed European species in particular, namely the taxon then known as *M. latilunulatus* (Collin). Mazanek et al (1998), showed that the correct name for *latilunulatus* of Collin was *bucculatus* (Rondani). The following year Mazanek et al (1999) published descriptions of two further species in this complex, *E. duseki* and *E. goeldlini*, the former from northern Europe, the latter from central Europe. Their description of *E. goeldlini* was based on the male only. Haarto and Kerppola (2007) include both *E. duseki* and *E. goeldlini* in their keys, together with *E. bucculatus*, citing all three species from Finland. Further, they key out both sexes of *E. goeldlini*, though they provide no description, as such, of the otherwise undescribed female of *E. goeldlini* (they do, on p.176, provide a brief diagnosis of *E. goeldlini* in Finnish, which makes reference to some features of the female). The present text provides the first citations of *Eupeodes goeldlini* for Britain, France and Ireland and a key allowing separation of *E. goeldlini* from other known Atlantic zone *Eupeodes* species. The concept of the male of *E. goeldlini* employed here is based on the original description of the species provided by Mazanek et al (1999) and on Haarto and Kerppola (2007). The concept of the female is based on Haarto and Kerppola (2007).

Eupeodes goeldlini Mazánek, Láska & Bičík, 1999

Britain

Dorset: 29 August 1998, 2 males; SY875935 Bere Heath Wood, Bere Regis; coll. and det. D. & T. Levy.

Gloucester: 31 July 1983, female; SO625110, Forest of Dean; coll. and det. D. & T. Levy.

Norfolk: 18 July 1983, female; Upton; coll. W. Erwin, det. D. Levy.

France

Cher: 25 May 1991, female, Apremont; alluvial *Salix alba* gallery forest, along R. Allier; coll. and det. M. C. D. Speight.

Pyrénées-Atlantiques: 25 July 1999, male, F. de Bious-Artigues, Vallée d'Ossau; open slope mire within *Abies* forest, 1600m ; coll. and det. J-P. Sarthou.

Ireland

Co. Kildare: 13 May 2004, male; 10 June 2004, females; N692 259 (PV2), Lullymore E.; *Molinia* grassland and *Betula/Salix* scrub on drained valley bog, at edge of conifer plantation; coll. and det. M. C. D. Speight.

E. goeldlini is as yet a little-known species. It has been found in Poland, Germany, the Czech Republic, Slovakia and Switzerland, plus Finland and European parts of Russia. In its features, the sole Irish male specimen corresponds well with the original description of the species and can be determined without much difficulty using the keys of Haarto and Kerppola (2007). However, although *E. goeldlini* is also included in the keys of van Veen (2004) it would be difficult to correctly determine this species using those keys. For some reason van Veen (l.c.) includes the male of *E. goeldlini* in a section of the key in which the black marks on the sternites are "rectangular or nearly so", whereas they are distinctly rounded in this species (as figured in the original description). Further, van Veen uses as a diagnostic feature, to separate *E. goeldlini* from *E. duseki*, the extension of the pale tergal markings to the lateral margins of the tergites, a feature that is stated in the original description to be variable in *E. goeldlini*, the pale marks being separate from the margins of the tergites in dark specimens. The female of *E. goeldlini* is not included in van Veen's (2004) keys. Using the keys in Ball *et al.* (2002) the French male of *E. goeldlini* would run to "*Eupeodes* species B", but the French and Irish females recognised here as *E. goeldlini* do not key out satisfactorily as "species B". Even so, it would seem very likely that "species B" of Ball et al (2002) will prove to be *E. goeldlini.* The Irish male has a narrower face than is indicated for either "species B" or *E. goeldlini* – at its maximum width it is slightly narrower than the maximum width of an eye in anterior view. According to Mazanek *et al.* (1999) the face in male *E. goeldlini* varies in width from "43-49% of width of head". In redescribing *E. bucculatus* Mazanek *et al.* (1998) unfortunately give neither figure, nor information on, the width of the face of the male lectotype, or on variability in facial width in this species. However, facial width in *E. bucculatus* s.s. is known to vary from about the maximum width of an eye to greater than the maximum width of an eye and it is assumed here that facial width in *E. goeldlini* could do likewise. Ball *et al.* (2002) highlight the variability of facial width in *E. bucculatus* males by separating two forms, X and Y, based largely on this feature. It should also be noted that the figure of the dorsal

surface of the abdomen in the *E. bucculatus* lectotype, provided by Mazanek *et al.* (1998), shows a specimen in which the pale markings are separated and very large, almost exactly as in "species B" of Ball et al (2002). Further, Mazanek *et al.* (1999) state that "in external morphology *E. goeldlini* is almost identical with *E.bucculatus*". They do, however, state that the dark sternal markings in the lectotype of *E. bucculatus* are rectangular (Mazanek *et al.*, 1998) and "dark spots on sternites 3 and 4 oval and of equal size" in the holotype of *E. goeldlini* (Mazanek et al, 1999). In deciding the identity of the specimens that form the basis of the present text, Haarto and Kerppola (2007) are followed, in taking the shape of the black sternal markings to be more diagnostic than other features, and in employing the basis they use for recognising the otherwise undescribed female of *E. goeldlini*. Collection of both male and female specimens of apparently *E. goeldlini* from the same Irish locality has also been taken as significant, coupled with the experience of repeatedly finding males and females of "typical" *E. bucculatus* (i.e. with very rectangular dark marks on the sternites) together elsewhere, in both Ireland and on the continent.

A notable feature of the British, French and Irish females recognised here as *E. goeldlini* is their entirely orange hind femora. The colour of the hind femora in the Finnish specimens identified as females of *E. goeldlini* is not noted in the keys of Haarto and Kerppola (2007). However, Antti Haarto (pers. comm.) has confirmed that the female in his collections does have entirely yellow hind femora. In *E. bucculatus* females the femora are almost invariably black at the base. In that species the hind femora are usually black for about 50% of their length. The only European *Eupeodes* species with characteristically pale hind femora in the female and otherwise similar to the females here identified as *E. goeldlini*, is *E. nitens* (Zetterstedt). But the female of *E. nitens* has wings almost entirely covered in microtrichia, the front femora largely black-haired postero-laterally, rectangular black markings on the sternites and small frontal dust spots. The females here identified as *E. goeldlini* do not correspond with *E. nitens* in any of those features, though they do show some variability in the extent of the frontal dust spots. In fresh specimens, the black marks on the sternites are easy enough to see in both sexes of all *Eupeodes* species. But post-mortem changes in the content of the abdomen may cause considerable general darkening that obscures the surface colouring of the sternites and can make the shape of the black markings difficult to discern. Entirely pale hind femora can also be found in females of *E. luniger*. An ancillary feature helping to distinguish females of *E. goeldlini* and *E. luniger* is that in the former species the pale marks on tergites 3 and 4 usually form complete, undulating, transverse bands that reach the lateral margins of the tergites, whereas in *E. luniger* these markings are almost invariably in the form of a pair of separated spots on each tergite, that do not reach the lateral margins.

There is very little biological information available about *E. goeldlini*. The Irish male was collected whilst feeding at flowers of *Taraxacum*, and the Dorset specimens were on *Leontodon* flowers, and that would seem to be the only data on flower-visiting for this hoverfly. Its general habitat preferences are unclear. The

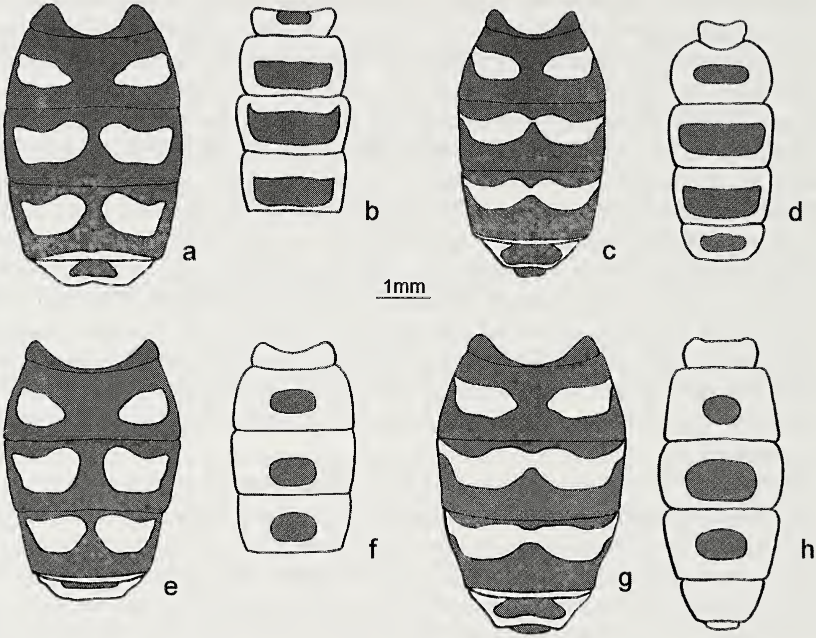

Figure 1: a-d = *Eupeodes bucculatus*; e-h = *E. goeldlini* ; a, b, e, f = males; c, d, g, h = females; a, c, e, g = tergites 1-5; b, f = sternites 1-4; d, h = sternites 1-5 (all diagrammatic)

French female specimen was derived from a "classical" alluvial softwood forest site that shared with the Irish site features of seasonal flooding and presence of *Salix* species. *Salix* scrub was also present on the Pyrenean slope mire from which the French male was collected. There is habitat information from one of the British localities, but it is ambiguous – the specimens were collected from open rides in conifer plantation close to *Salix* swamp. Although *Salix* is present at Finnish field-edge/forest localities where *E. goeldlini* was collected, *Salix* is omnipresent in such situations in Finland (Antti Haarto and Sakari Kerppola, pers.comm.). Indeed, if there were some direct relationship between presence of *Salix* and occurrence of *E. goeldlini* one might reasonably expect *E. goeldlini* to be frequent and widely distributed in Finland, which does not seem to be the case. If further records with good associated habitat data were to be published this might help to clarify the species' requirements. The original description (Mazanek *et al.*, 1999) unfortunately provided little habitat information for any of the localities from which the species was recorded, though one was apparently "polder" and another was close to a pond. Whether *E. goeldlini* has been overlooked until so recently due simply to confusion with the closely-related *E. bucculatus*, or also because it is rarely encountered, will remain a matter for conjecture until its status in different parts of Europe is better

established. The data provided by Haarto and Kerppola (2007) certainly suggest that *E. goeldlini* is much less frequent in Finland than is *E. bucculatus* – the latter is generally distributed there but only five Finnish records of the former are known. Similarly, in Ireland *E. bucculatus* is not infrequent in the Midlands and western parts of the island. But only one locality has as yet yielded *E. goeldlini*. Nonetheless, the species evidently ranges widely through Europe. The records provided by Haarto and Kerppola (2007) extend the known range of this species far into the North-west of the continent and the Pyrenean record included in the present note extends its range considerably towards the South-west.

Key to Atlantic zone *Eupeodes* species

This key includes known Atlantic zone species plus *E. lucasi* (Marcos-Garcia and Láska). The latter is included since its occurrence in at least southern parts of the Atlantic zone would seem likely. If *E. lucasi* were to occur in the more northern parts of the Atlantic zone, separation of this species from *E. luniger* would be dependent upon the females, since there is as yet no reliable way of separating males of *E. lucasi* from males of *E. luniger* in which the hind femora are black for most of their length. This is not the only taxonomic issue still awaiting resolution among European *Eupeodes* species and the possibility of the presence of additional species within the Atlantic zone requires to be born in mind in using this key.

1	Metasternum hairy	**2**
-	metasternum bare	***Lapposyrphus lapponicus*** (Zett.)
2	Microtrichia covering distinctly more than 50% of the wing membrane	**3**
-	microtrichia covering less than 50% of the wing membrane (resembling *Scaeva*, but with eyes bare)	***lundbecki*** (Soot-Ryen)
3	Males	**4**
-	females	**5**
4	In dorsal view, genital capsule extending beyond tergite 5 for a distance equal to, or greater than, the median length of tergite 5	***corollae*** (Fab.) (male)
-	genital capsule extending beyond tergite 5 for a distance equal to half, or less, the median length of tergite 5	**7**
5	Frons with lateral dust spots	**7**
-	frons without lateral dust spots	**6**
6	Alula entirely covered in microtrichia	***latifasciatus*** (Macqt) (female
-	Alula with a large area bare of microtrichia towards the base	***lucasi*** (Marcos-Garcia & Láska) (female)
7	Lateral margin of tergite 5 entirely yellow	**8**
-	lateral margin of tergite 5 partly, or entirely, black	**17**
8	Alula entirely (or almost entirely) covered in microtrichia	**9**
-	Alula with a large area bare of microtrichia towards the base	**14**
9	Males	**10**
-	females	**12**

10 Black mark on each sternite rounded (fig.1f) **11**
- black mark on each sternite angular (fig.1b), that on st 3 often produced into an anteriorly directed point at antero-lateral corners (post-ocular orbits adjacent to vertical triangle narrower than length of an ocellus) ***bucculatus*** (Rond.) (male, part)

11 Post-occular orbits adjacent to vertical triangle distinctly wider than length of an ocellus; anterior margin of pale marks on tergite 3 almost straight ***latifasciatus*** (male)
- post-occular orbits adjacent to vertical triangle approximately as wide as length of an ocellus; anterior margin of pale marks on tergite 3 deeply concave (fig.1e) ***goeldlini*** Mazanek, Láska & Bičík (male)

12 Sternites 4 and 5 each with an angular, transverse black mark or band (fig.1d) **13**
- Sternite 4 with a rounded black mark; sternite 5 entirely pale (fig.1h); hind femora entirely yellow (posterolateral hair fringe on front femur mostly pale; 2nd basal cell of wing with 30% or more of surface bare of microtrichia; frontal dust spots occupying more than 50% of width of frons) ***goeldlini*** (female)

13 Posterolateral hair fringe on front femur almost entirely black; 2nd basal cell of wing entirely or mostly covered (up to 30% bare) in microtrichia; legs entirely yellow; frontal dust spots occupying <50% of width of frons ***nitens*** (Zett.) (female, part)
- postero-lateral hair fringe on front femur mixed black and yellow; 2nd basal cell of wing 50% or more bare of microtrichia; legs with bases of all femora black and hind femora with basal half or more of length black; frontal dust spots occupying 50% or more of width of frons ***bucculatus*** (female)

14 Males **15**
- females **16**

15 Hind femora black for basal half or less of their length ***luniger*** (Mg.) (male, part: southern Europe and a good proportion of specimens from further north)
- hind femora black for basal two thirds to three quarters of their length ***lucasi*** (male) and ***luniger*** (male, part: many specimens from the more northerly parts of the Atlantic zone)

16 Pale markings on tergites 3 and 4 reaching the lateral margins of the tergites (black area on frons extending forward medially, for a distance of one third or less the distance between the anterior ocellus and the lunule) ***corollae*** (female)
- pale marks on tergites 3 and 4 not reaching the lateral margins of the tergites (in the female, the black area on the frons extends forwards, as a median Y-shaped or V-shaped mark, for more than half the distance between the anterior ocellus and the lunule) ***luniger*** (female)

17 Males **18**
- females **20**

18 Tergite 5 with lateral margins partly yellow (wing with 2nd basal cell partly bare; alula entirely, or almost entirely covered in microtrichia) ***bucculatus*** (male, part)
- Tergite 5 with lateral margins entirely black **19**

19 Alula entirely covered in microtrichia; ocellar triangle clearly longer than wide; angle between eyes c 90° (pale markings on tergite 3 and tergite 4 in the form of a narrow, undulating, transverse band that reaches the lateral margin of the tergite, or a pair of separated transverse bars that may or may not reach the lateral margins) ***nitens*** (Zett.) (male)

\- Alula with a distinct, but narrow area bare of microtrichia basally; angle between eyes distinctly greater than 90°; ocellar triangle equilateral (pale markings on tergite 3 and tergite 4 in the form of a pair of separated transverse bars that do not reach the lateral margins of the tergites) ***nielseni*** (Dusek & Láska) (male)

20 Legs with hind femora black for c.50% of their length (frontal dust spots usually covering 50% or more of width of frons; alula with or without bare area across base) **21**

\- hind femora entirely orange (frontal dust spots covering <50% of width of frons; alula entirely covered in microtrichia) ***nitens*** (female, part)

21 Lateral margins of tergite 5 entirely black; clypeus 1.75-2x as long as broad (alula with area bare of microtrichia across base) ***nielseni*** (female)

\- lateral margins of tergite 5 partly pale (yellowish); clypeus 1.25-1.5x as long as wide (alula with or without a narrow bare area at base) ***bucculatus*** (female, part)

Acknowledgements

We are grateful to Antti Harrto and Sakari Kerppola for information about *E. goeldlini* in Finland and to Tom Gittings (University of Cork) and Colin Plant (Hertfordshire) for checking to see if they had any *E. goeldlini* lurking among their *E. bucculatus* material.

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The Rothamsted Insect Survey light trap on Jersey – species of note in 2004

The Department of Agriculture and Fisheries at Howard Davis Farm, Trinity has been running a light trap for the Rothamsted Insect Survey since 31 December 1969, providing a very large and invaluable long-term data set. The current trap is known as "Jersey II" (site 547) to distinguish it from the original site from which it was moved (about 100m) in 1993. Not surprisingly, given its proximity to France, every year the trap turns up migrants or vagrants from Europe that would be considered uncommon on the British mainland. However, despite the length of time it has been in operation, the trap still produces records that are of particular interest.

Geometridae. On the night of 7/8 June a single Dotted Border Wave *Idaea sylvestraria* Hb. was caught. This is only the third confirmed record for Jersey of this dainty little moth, which is easily confused with the Satin Wave *Idaea subsericeata* Haw. Previous specimens were taken by David Wedd in 2004 and Roger Long in 2005; on Guernsey the species is known from three specimens, all taken in 1997 (Roger Long, pers. comm.). The foodplant in the wild is not known but it is thought to feed on a variety of low-growing plants. A polyphagous species such as this is not restricted by foodplant and it is probable that it is an under-recorded resident on Jersey. A singleton of the Clay Triple-lines *Cyclophora linearia* Hb. was recorded during the period 28 May to 1 June. This species, despite being widespread in mainland Britain, is considered as very scarce on Jersey. The May Highflier *Hydriomena impluviata* D.&S. recorded on 2/3 June deserves a similar status. The Purple Thorn *Selenia tetralunaria* Hufn. caught between 6 and 9 August would once have been considered as a real rarity on the island but since 2004 it has been recorded on a few more occasions. Similarly, the Small White Wave *Asthena albulata* Hufn., trapped between the dates of 30 July and 6 August, is still fairly scarce but not as rare as it once was. A single Scorched Carpet *Ligdia adustata* D.&S. on 22/23 July would also once have been thought of as quite a rarity. However, it is now found at several sites on Jersey and can be locally common where there is a breeding population (R. Long, pers. comm.).

Noctuidae. Two species of noctuid once considered rare on Jersey were also recorded in 2004. A single Scarce Merveille du Jour *Moma alpium* Osb. was caught on 9/10 June. In the last three years, however, numbers of this species on Jersey have increased, with frequent discoveries of new populations. Finally, the lone Tree-lichen Beauty *Cryphia algae* Fabr. that came to the trap on 9/10 August was clearly a precursor to the much larger numbers since recorded across the island.

The on-going effects of climate change must no doubt be assisting these species to change their distributions so dramatically, helped by the remarkable migration events that have been taking place in recent years, particularly that of 2006.

Many thanks to Roger Long (Chairman of the Entomology Section, Société Jersiaise) for his assistance in identifying these interesting records and for further comments on this material, and to Alex Vautier for her long-standing hard work in running the light trap.— PHILIP J. L. GOULD, Co-ordinator of the Rothamsted Insect Survey Light-trap Network, Plant & Invertebrate Ecology Department, Rothamsted Research, Harpenden, Hertfordshire, AL5 2JQ. (E-mail: phil.gould@bbsrc.ac.uk).

Hazards of butterfly collecting: The lifeline that is the BBC World Service – the World, 1970-2007

I have earlier in these columns mentioned that some of my most interesting and pleasant butterfly collecting took place in the village of Mkpot 1, located right in the centre of the Oban Hills National Park in Nigeria. I even named *Anthene emkopoti* in its honour. Twice I was there for more than a week (1995/96) and I still remember the kindness of the villagers and their willingness to introduce me to the complexities of their daily life. Thanks to them I could even, if need be, tap palm wine and distill it to gin. Since everything had to be carried out as head-loads, country gin was the main village export – and quite a lucrative one at that.

The rhythm of village life was fixed, but not exactly as it had been for centuries. As dawn broke between five and six in the morning the first stirrings in the village were the sounds of the BBC Africa Service's "Focus on Africa". By six o'clock the title-tune of the main news was being coaxed out of the ether by batteries on their last legs. This was during some of the worst times of Nigeria's tortuous history, during the presidency of the unlamented Sani Abacha, and no-one trusted the local broadcasters one iota – and had no compunction in telling me so. The thought-police did not reach that far. The villagers were remarkably conversant with world politics and they also loved sports. Manchester United had no more fervent supporters than the villagers of Mkpot 1.

For me too, BBC World Service has been an essential component of butterfly collecting: a life-line to the world I leave behind when disappearing into the forest for weeks on end. On one occasion, I remember, the link to my world was unusually direct. I was late and switched on the news at 06.10 hours and heard: ... "in Coldharbour Lane, Brixton." That was my own address, and I had an hour's agonizing wait till the next news told me there had been a new set of Brixton riots, though on nothing like the scale of 1981, and nothing that would trouble my wife.

This story was partly inspired by the recent release (July 2007) of the BBC correspondent in Gaza, Alan Johnston, after four months of captivity. He was allowed to listen to the World Service and found it wonderful, especially as he could follow the attempts at getting him released. My own experience of captivity is limited to a single, unthreatening day in polite "house-arrest", but I fully appreciate his point of view. I really hope that Alan Johnston's fulsome tribute to his own employer will not stop random kidnappers from denying their victims access to the BBC. His reasoned reports from Gaza were masterpieces of the journalism that makes BBC so good. I hope he recovers from his ordeal.

In 1973 Lebanon had a pre-test of the civil war than was to ravage the country for the next twenty years. Our building became part of the front-line. Most of our windows were shattered by bullets and we had to retreat to a spare back bedroom. The worst was a 12.7mm bullet that had managed to go through my wife's entire collection of classical records – about 100 records lovingly assembled over 15 years. The BBC tried to make sense of the situation, but in truth there was no sense. The Lebanese media were useless: one newspaper was censored to the extent that the front page was white except for a single ad for Middle East Airlines – whose entire fleet had already been evacuated to Cyprus. The radio was a string of announcements on who had met with whom at higher political levels, which presumably had some meaning for initiates. The BBC told us to be sure to fill all our

bathtubs with water and to stay put. I disobeyed this advice and was nearly killed when the airport taxi I shared with my boss was caught in crossfire: we really had to attend a family planning meeting in Cyprus that could not proceed without us.

In 1986, Nancy and I decided to visit the pilgrim centre of Badrinath in the high Himalaya, one of the holiest pilgrimages for Hindus. The last bit of road from Joshimath was "up" from 06.00 to 11.00 and "down" from 13.00 till 18.00. Night driving was not allowed. We clearly had to stay the night in Joshimath, but that seemed OK – it had plenty of small hotels and guest houses in colonial style. They were all full. We finally found room in a huge communal dormitory, in which we were able to secure a "cubicle" – our two beds were screened by paper-thin, two-metre tall partitions. It must have been the noisiest place I have slept in. Two or three hundred people, aged 0 to 90, excited by the prospect ahead – a bit like sleeping in an Oxford Street department store where the sales just opened. It did quieten down in the small hours, about 02.30, leaving an hour and a half till it unquietened again. At 04.00 the signature tone of the BBC news blared out, followed by children screaming, the sounds of gargling or retching, fitness enthusiasts getting fit, etc. No more sleep. However, the excitement and joy that permeated the crowd of pilgrims was infectious. And it is good to have checked out the world news before making a pilgrimage.

A few months later in the Nilgiri Mountains I went to see a butterfly collection that had been formed long ago by a man now in his eighties. There was not really much to see and most of the collection was unlabelled – recollection of where specimens with no labels were collected must be among the most suspect of data in the entomological world. However, a few interesting things could be examined, and we sat down for a cup of tea and exchange of experience. During our meandering conversation the gentleman suddenly began discussing butterfly defences, with an emphasis on false heads and seasonal variation. It gradually dawned on me that he was re-telling with considerable precision a small talk I had given on the BBC just before leaving for India two years earlier – his amazement knew no bounds. Yesterday's newspapers are generally unloved – a two-year old radio broadcast was not!

In 2000 I had a well-paid assignment to analyze the butterfly fauna of Bia National Park in Ghana. I stayed at the large Wildlife HQ at Debiso, a village on the main road that was almost dwarfed by the camp. My arrival had been late. At 07.25 I was awakened by a great hubbub; more than 50 people crowded outside the door: "Butterfly man, butterfly man! We heard you on the BBC!!" I had recorded a talk on butterflies and conservation in Ghana a few weeks earlier in London and they had chosen this day to broadcast it. I was used to a more reserved reception, but I now progressed from "butterfly man" to local hero. People were sent to ensure that all villagers heard the repeat of the talk an hour later, when the rest of us listened in as well. It cost me an awful lot of beer over the next few days – but did it enhance my prestige!

Maybe I should not use this column for what might look like propaganda for a peculiarly British institution. But it is not like that. I must have listened to the BBC in more than 60 countries. There are other options on the short-wave bands: Deutsche Welle in English, Radio Netherlands, the United States Information Service all try their best, with but a fraction of the BBC audience. They are OK: but they are not the BBC World Service!— TORBEN B. LARSEN, Jacobys alle 2, 1806 Frederiksberg, Denmark (E-mail: torbenlarsen@compuserve.com).

PARNA APICALIS (BRISCHKE, 1888) (SYMPHYTA: TENTHREDINIDAE), A LEAF-MINING SAWFLY NEW TO GREAT BRITAIN

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Abstract

The first records of *Parna apicalis* (Brischke, 1888)(Symphyta: Tenthredinidae) in the British Isles are presented, based on leaf mines collected in England.

Records of *Parna apicalis* in England

While searching Tunbridge Wells Common, West Kent (VC 16) on 1 June 2007, KP came across tenanted leaf-mines on *Tilia cordata* (Small-leaved Lime). Inspection of the frass indicated that they were made by a species of Hymenoptera. He was aware of the occurrence in Britain of the lime leaf mining sawfly *Parna tenella* (Klug), but the larvae had not caused rolling of the leaf to any extent – a feature typical of *P. tenella*. There was no indication of larvae still being present in mines on two leaves which were more closely examined. On looking at the photographs shown on the leaf-miner website (www.leafmines.co.uk) it was conjectured that they might be the mines of *Parna apicalis* (Brischke, 1888), but this was indicated to be a European species not known in the British Isles. These mines were sent to AL for his opinion, who considered that there was "little doubt" that the mines belonged to *P. apicalis*, although he had not found any larval exuviae.

On 16 June 2007, KP collected several more mined leaves from the same tree: remarkably, a second *T. cordata* close by did not seem to have any. They were sent to RE, who photographed them along with larval exuviae that he found within one mine. He noted that the pattern of sclerotizations conformed strongly with those of *P.apicalis*. Dr. Ewald Altenhofer and AL were consulted, both of whom confirmed the identification. This species has not previously been recorded in Great Britain.

After these findings were publicised in a newsletter on the leaf-mine website, SH contacted RE stating that he had recently found the same type of mine at two sites between Macclesfield and Stockport. He sent vacated leaf-mines collected at Poynton Coppice, Poynton, Cheshire on 31 May 2007. These were photographed by RE and confirmed as *P. apicalis* by Ewald Altenhofer and AL. SH had first found tenanted mines of this type of mine at Torkington Park, Hazel Grove, Stockport on 30 May 2006.

Notes on taxonomy

Parna tenella was the only species of this genus known in Europe until Chevin (1983) recorded a second species as *P. kamijoi* Togashi, 1980 from France. Based on examination of material of this second taxon reared by Altenhofer in Austria, Liston

(1993) described *Parna reseri* as a new species. It was recently discovered (Liston *et al.* 2006), that *P. reseri* is a junior synonym of *P. apicalis* (Brischke). Byun & Shinohara (1999) justifiably questioned whether the East Palaearctic *P. kamijoi* is distinct from the West Palaearctic *P. reseri* (= *apicalis*). Examination of the types of *P. kamijoi* and further material kindly loaned by A. Shinohara to AL, has since shown that they are indeed separate species, although very similar. A revision of the genus is in preparation.

Sex ratio

Whereas males of *P. tenella* are frequent, only females of *P. apicalis* are known, even in a series of 350 reared specimens (Altenhofer 1980, as *P. tenella*).

Identification of leaf mines

The mines made by *P. apicalis* (Fig. 1) are smaller than those of *P. tenella and* do not cause the leaf to roll (which is always the case in *P. tenella*). Phenology of the two species, both univoltine, is also different. *P. apicalis* adults appear, apparently very briefly, from mid-April to early May on the continent, the exact time depending on altitude. The larva completes development by mid-May/early June. *P. tenella* adults first appear in mid-May, larval development is completed at earliest in mid-June, and the inhabited mines can be found as late as early August.

Figure 1. *Parna apicalis* (Brischke, 1888)(Symp.: Tenthredinidae), Tunbridge Wells Common, West Kent (VC 16), 1 June 2007, Keith Palmer. Photograph ©Rob Edmunds).

Hostplants

The first rearings of *P. apicalis* in Europe were from *Tilia cordata* (Brischke 1888, as *Blennocampa apicalis* on *Tilia parvifolia (= cordata)*; Liston 1993, as *P. reseri*). As has recently been shown also for *P. tenella* (Halstead, 2004), *P. apicalis* does not seem at all particular about which *Tilia* species it uses as a host (Liston 2006: observations in Berlin Botanic Garden, under *P. reseri*).

Comments

The wide distribution of the recent English records seems to indicate that *P. apicalis* is well established in the UK. Perhaps it had previously been overlooked, although the possibility must be considered, especially in a thelytokous parthenogenetic species such as this, that it was accidentally introduced to Britain. The wide continental distribution from southern Finland and Estonia, through Central Europe (Taeger *et al.* 2006) to Bulgaria in the South-East (Muche 1977, as *P. aff. tenella*) suggests that *P. apicalis* might be found to be more widespread in the British Isles than is indicated above. We look forward to the first records of adults in the UK. These can be distinguished from *P. tenella* as follows:

1 Rear legs with coxa, trochanters and base of femora black.
Tegulae yellowish. Body length: 3.5-4.0 mm.
Male unknown: probably does not occur in nature *P. apicalis*

— Rear legs with at most coxa black marked.
Trochanters and femora entirely yellow.
Tegulae dark brown or fuscous. Body length: 4.0-5.0 mm. Male frequent. *P. tenella*

Acknowledgements

Many thanks to Dr. Ewald Altenhofer (Etzen, Austria) for his help with identification and for providing European mines for the leafmine website. Thanks also to Guy Knight (Liverpool Museums) for other information.

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Colonies of the Asian elm aphid *Tinocallis takachihoensis* Higuchi (Hem.: Aphididae) in Britain

The aphid *Tinocallis takachihoensis* is an Asian species (Higuchi, 1972. *Insecta Matsumurana* **35**: 19-126; Quednau & Shaposhnikov, 1988. *Can. Ent.* **120**: 1017-1032) that was inadvertently introduced to Europe at least 20 years ago (Leclant & Renoust, 1986. *Phytoma* **375**: 49-50). Although it has been regularly intercepted on imported *Ulmus* and *Zelkova* Bonsai plants in the last few years in Britain (e.g., Roques & Auger-Rozenberg, 2006. *Bull. OEPP/EPPO* **36**: 490-496; DEFRA 2007. http://www.defra.gov.uk/planth/interc/2007p.pdf), no colonies on plants native in Britain have been found outdoors so far. This note reports the first outdoor colony sightings of *Tinocallis takachihoensis* from *Ulmus* trees in Britain.

The winged virginopara is a beautiful insect with blackish wing markings, a pale yellow abdomen, a black head and thorax, and red eyes (Figure 1).

The wing markings consist of borders along all three distal branches of the media, a small spot on the distal part of the cubitus 1a, and a small pterostigma. The most conspicuous wing marking, however, is a large spot on the distal part of cubitus 1b, about as wide in diameter as the head is long. Further remarkable structures are two rather large black tubercles on the mesothorax. There are also two shorter and less conspicuous tubercles on the prothorax. The body length and antennal length of the winged virginopara was determined as 1.70 ± 0.09 mm and 1.68 ± 0.11 mm, respectively (average $\pm$ SD, n=5). More morphological details of the winged adult are described in Blackman & Eastop (1994. *Aphids on the world's trees*. CAB International). The nymphs are pale yellow throughout, except for inconspicuous dark markings on the distal parts of the antennal segments. Unlike the imago, the nymphs wear many long capitate hairs on the abdomen, elevated on little tubercles.

Host plants of *T. takachihoensis* are members of the Ulmaceae, including *Ulmus* spp. (elms) and *Zelkova* spp. In Europe, the species has been recorded in southern France (Leclant & Renoust, 1986. *Phytoma* **375**: 49-50), Italy (Patti & Barbagallo, 1997. *Boll. Laborat. Ent. Agrar.'F. Silvestri'* **53**: 29-84; Sinacori & Mineo, 1998. *Informatore Fitopatologico* **48**: 58-62), Andorra (Mier Durante & Pérez Hidalgo, 2002. *Supl. Bol. Soc. Portug. Ent.* **6** [1999]: 213-217) and Spain (Lumbierres *et al.*, 2004. *Adv. Hort. Sci.* **18**: 1-7; Pérez Hidalgo & Nieto Nafría, 2005. *Bol. Asoc. Esp.*

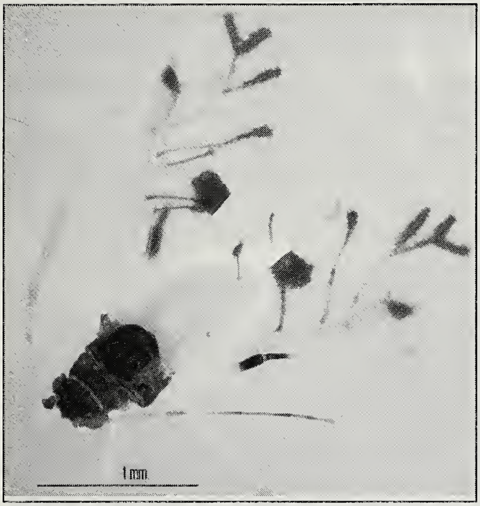

Figure 1. Alate *Tinocallis takachihoensis*, preparation in 70% ethanol.

Ent. **29**: 125-127). Recently, it was also found in Germany on *Ulmus* sp. (T. Thieme, Biotestlab, pers. comm., and own observations in Göttingen on 15 June 2007). On mainland Europe, the species is able to overwinter (R. Hammon, CSL, pers. comm.).

The recent findings in the UK are all in Berkshire, approximately 40 km from central London, at Ascot (O. S. grid reference SU 927687; 77 metres above sea level) and four locations at Sunninghill (SU 939683, 72 metres asl; SU 940682, 68 metres asl; SU 941693, 68 metres asl; and SU 935680, 75 metres asl). The maximal distance between two neighbouring locations is 1.3 km; the insects were evident from 9 June 2007 to 30 July 2007. The alate aphids were identified with the key published by Blackman & Eastop (1994. *Aphids on the world's trees*. CAB International). Further samples were collected by the Plant Health & Seed Inspectorate of DEFRA and identification was confirmed by the Central Science Laboratories, an agency of DEFRA. The host plants were identified as *Ulmus glabra*. On each tree both alatae and alatoid nymphs were found. On one tree (Sunninghill, 11 July 2007) there were more than 80 alatae and many more alatoid nymphs. All findings were made on planted elms growing alongside roads.

It remains to be investigated if there are more sites in Britain where *T. takachihoensis* has been able to establish colonies outdoors and whether the species is able to overwinter in Britain. At present, the ecological and economic significance of the species on the British Isles is unclear.

I like to thank Prof. Mick Crawley FRS for identification of the elm specimens, as well as David Butler, Ray Cannon, Graham Clift, Helen Long and Thomas Thieme for providing information on *Tinocallis*. I would also like to express special thanks to Juan Manuel Nieto Nafría, Roger Hammon and Nicolás Pérez Hidalgo for their help with the preparation of the manuscript.— THOMAS F. DÖRING, Imperial College London, Division of Biology, Aphid Biology Group, Ascot, SL5 7PY. (E-mail: t.doering@imperial.ac.uk)

Tilia cordata – a new foodplant for _Incurvaria pectinea_ Haw. (Lep: Incurvariidae)

On 4 June 2006 I found several mines of an *Incurvaria* species on the leaves on 'suckers' of Small-leaved lime (*Tilia cordata*) in Fleet, Hampshire. This was an *Incurvaria* species foodplant I was unfamilar with. Consulting Hering (*Bestimmungstabellen der Blattminen von Europa*) it seemed as if it could be either *Incurvaria masculella* or *I. koerneriella*; the latter would be a new species for Britain. The mines are illustrated in Figure 1, below:

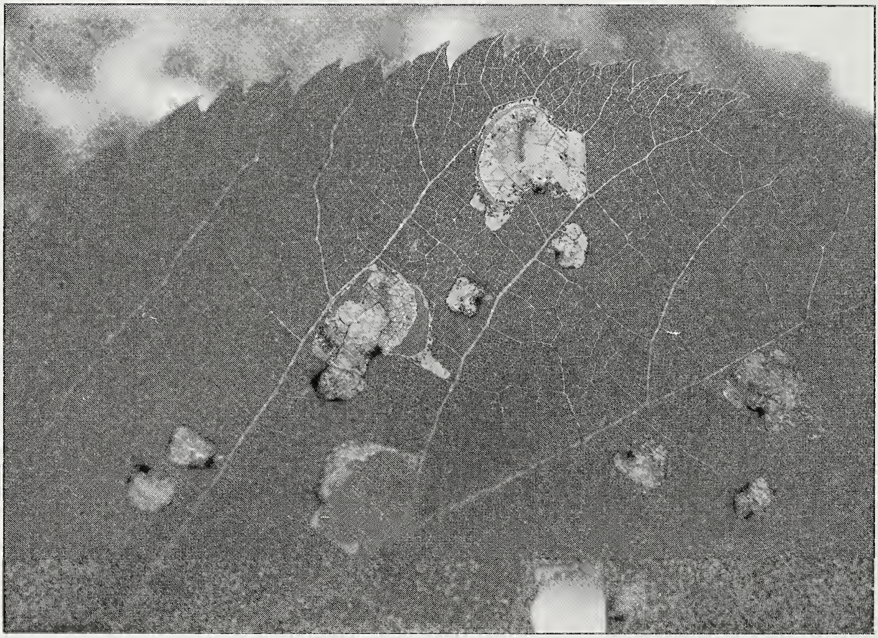

Figure 1. Larval mines of *Incurvaria pectinea* on *Tilia cordata.*

The young larvae were photographed, but did not seem to match descriptions of larvae in either Hering or Volume 1 of the series *Moths and Butterflies of Great Britain and Ireland* (Harley Books). Little seemed to be known about the larval morphology and whether the dorsal and ventral sclerotizations changed between instars and so it was decided, with John Langmaid's encouragement, to attempt to breed them through. I sent four 'cases' to Ben Smart and kept four myself. Ben successfully reared one moth, a female, which emerged on 15 April 2007. Ben's technique in rearing was to keep the mines in a secured plastic bag with some lime leaves and a piece of damp tissue. He kept this system going with fresh leaves every five to seven days, leaving the old ones in until the larvae voluntarily switched to the newer leaves. The frass was removed at this point also and a fresh piece of tissue added. Around September/October he put the leaves and cases into a plant pot two-

thirds filled with soil and covered with a pop sock. The pot was then left in a sheltered spot in the garden until emergence. Superficially the emergent moth resembled *Incurvaria pectinea*, but the frons was ellow (an uncommon colour for *pectinea*) and this foodplant was unknown in Europe for *I. pectinea*.

Shane Farrell then set the moth and dissected the genital apparatus in an attempt to identify it. A critical feature for identification of females of this group is the shape of the ovipositor (Figure 2).

Figure 2. Ovipositors of *Incurvaria* spp., (a) *pectinea*, (b)*oehlmanniella* (c) *masculella*.

The problem of identification was discussed with other lepidopterists and both Brian Goodey and Patrick Clement dissected female *Incurvaria pectinea*, *masculella* and *oehlmanniella* from their collections of to try and determine the species The ovipositor combs they dissected are seen below and it shows that the *Incurvaria* bred from *Tilia cordata* was indeed *pectinea* – a first record of the foodplant for this species in the UK (and possibly Europe).

Thanks to Keith Bland, Patrick Clement, Willem Ellis, Shane Farrell, Brian Goodey, John Langmaid and Ben Smart for their help in identifying this leafminer.
— Rob Edmunds, 32 Woodcote Green, Calthorpe Park, Fleet, Hants, GU51 4EY. (E-mail: r.Edmunds@ntlworld.com).

Scarce Tissue *Rheumaptera cervinalis* (Scop.) (Lep.: Geometridae): a new record for north-east Scotland

In 2006, I caught two individual Scarce Tissue *Rheumaptera cervinalis* in a Heath trap in my garden in Banchory, Kincardineshire (VC 91: O. S. grid reference NO 699957) – one on 28 April and another on 5 May. Both were in fine condition. In 2007, an individual with one damaged hind wing was caught in the same location on 17 May. Waring& Townsend (2003. *Field Guide to the moths of Great Britain and Ireland*. British Wildlife Publishing), state that this resident species is quite well distributed in southern and eastern England (north to Northumberland) and in Wales wherever the larval food plant Barberry grows or has been planted. They speculate

that it is probably present quite widely in southern Scotland. There are in fact several records for southern Scotland, but few are recent and most refer to sightings before the 1930s The nearest record to Banchory was that of W. Herd back in 1869 in VC 88 mid-Perthshire ('near Perth'), some 60 miles to the south; there has apparently not been a more northerly record, until now. Given the current known status it is perhaps surprising not only that two (or just possibly the same individual caught twice) should turn up in one year but that another should be caught at a similar time in the same location the following year.

One possibility is that there may be a small but very local breeding population, since none have as yet been noted elsewhere in north-east Scotland. There are three small *Mahonia aquifolium* (the other important larval food plant) in my garden. While a natural and, given current knowledge, considerable northward extension of range is certainly possible, a more likely explanation is the presence of a large garden centre a mile away that stocks *Mahonia* and *Berberis* all year round. Both are very popular garden shrubs. I was told by the manager that most of his *Berberis* and some *Mahonia* come from two nurseries, one on the south coast of England, the other in East Anglia and that 75% of the *Mahonia* comes from a nursery in Holland, as does some of the *Berberis*. It is quite possible that eggs and/or larvae of this predominantly southern species, the UK stronghold of which is in East Anglia, may have been transported here on these food plants *via* this or another garden centre. If so, then the Scarce tissue might well be expected in other suburban gardens.

I am indebted to Drs Bob Palmer and Mark Young for pointing out the significance of the record and for their comments, to Dr K. P. Bland, National Museums of Scotland for extracting the Scottish records from the Scottish Insect Records Index (SIRI) which is held at the museum and Paul Doyle for the loan of the trap.

— N. Picozzi, Talsarn, Arbeadie Terrace, Banchory, Kincardineshire AB31 5TN.

PINE-TREE LAPPET *DENDROLIMUS PINI* (L.) (LEP.: LASIOCAMPIDAE) POSSIBLY RESIDENT IN SCOTLAND

Roger Kiddie

20 Whitehill Road, Gravesend, Kent, DA12 5PG.

Abstract

The discovery of Pine-tree Lappet *Dendrolimus pini* (L.) (Lep.: Lasiocampidae) apparently resident Scotland (VC 96) is reported.

Introduction

On 19 June 2007, while on holiday in East Inverness-shire, I found a specimen of Pine-tree Lappet *Dendrolimus pini* (L.) in my MV trap. The specimen was photographed and set for further investigation after the holiday. A further specimen was trapped, at the same site, on 22 June 2007. The second specimen was very worn, but not to the extent that identification was in any doubt. This specimen was also retained.

The history of the species in Britain and the Channel Islands

The first report was a larva taken by Wilkes near Richmond Park in September (Curtis, 1848), but it would not eat the hawthorn on which it was found and the adult was not bred. He called it the wild Pine-tree Lappit-moth; Barrett (1896) doubts the authenticity of this record, he says 'A larva, supposed to be of this species, found upon hawthorn at Richmond ... was doubtless one of the marbled varieties of *Gastropacha quercifolia*'. The second was a specimen taken in Norwich on 22 July 1809 by J. Sparshall, Barrett comments 'most likely, accidently introduced'. Since then there have been five reports from the Channel Islands and four from Britain as follows:

Forest, Guernsey, 9.vii.1989 – T.N.D. Peet (Tunmore, 2003); Freshwater, Isle of Wight, 12.viii.1996 – S.A. Knill-Jones (1997); Forest, Guernsey, 4.viii.1997 – D.Agassiz (Austin, 1998); St Peter's, Guernsey, 17.viii.2000 – P. Costen (Austin, 2001); Icart, Guernsey, 31.vii.2003 – T.N.D. Peet (Austin, 2004); The Lizard, W. Cornwall, 6.viii.2003 – M. Tunmore (2003); Leachkin, Inverness, 28.vii.2004 – D. Robinson (Clancy, 2007); St Peter's, Guernsey, 29.vii.2004 – P. Costen (Austin, 2004) and Littlestone, Kent, 2.viii.2004 – K. Redshaw (Clancy, 2004).

All apart from one of these records affect the southern part of Britain (and the Channel Islands) and are thought to relate to immigrants; the single Scottish record is discussed below. In addition, it should be recorded that a larva was found on a pine tree imported from Italy at Benfleet, Essex during 1999 (Down, 2000).

Records from Scotland

The two specimens obtained by myself were taken in a mercury-vapour trap situated at the edge of some ancient woodland west of Inverness, the first on the night of 19 June 2007 (Plate H) and the second on the night of 22 June 2007. The immediate

trap site was dominated by birch *Betula pendula* with an understorey of gorse *Ulex europaeus*, broom *Cytisus scoparius*, grasses and mosses. The line of birch formed a border to an area of mixed woodland with some dense stands of pines and more open areas with birch, gorse, broom, heathers (Ericaceae) and rhododendron *Rhododendron ponticum*, all over a thick carpet of mosses. The site is 120 metres above sea level and significantly is a mere 14 kilometres distant from Leachkin, where the species was discovered in 2004 (Clancy, 2007).

Discussion

Apart from the single Scottish capture, at Leachkin, all previous records of *D. pini* in Britain are of single individuals in the south of the country and probably represent immigration. However, the capture of two specimens from the same site in northern Scotland only a very short distance from the place where one was captured three years earlier suggests that the species may exist here as a breeding population. The habitat appears ideal for the species with an abundance of pines and spruce, the quoted food-plants, and the necessary mossy ground conditions for the over-wintering larvae. The origin of a Scottish population is a matter for speculation. The year 2004 was one of considerable migrant activity (Clancy, 2007) when other specimens were taken in the south of England and Channel Isles and it is possible that the 2004 specimen was part of a migration which penetrated this far north, though such a large leap would be very remarkable. An alternative possibility is accidental introduction. The site will need further monitoring in order to establish the true status of the species.

Acknowledgements

I would like to thank David Agassiz for his help in the preparation of this paper and Peter Costen for his assistance in clarifying the records from Alderney and Guernsey.

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Plate H. *Dendrolimus pini* (L.), Inverness-shire, 19.vi.2007

Remm's Rustic *Mesapamea remmi* (Rézbányai-Reser) (Lep.: Noctuidae) on Guernsey

As an investigation into the relative abundance and the flight periods of the Common Rustic *Mesapamea secalis* (L.) and the Lesser Common Rustic *Mesapamea didyma* (Esper), 286 randomly selected specimens of the Common Rustic aggregate taken at light in my garden in St. Peter's during the summer of 2006 were each photographed and set, and then dissected during the subsequent winter months. This figure represented about a 10% sample, selected using a random numbers table, of the 2914 moths recorded throughout the flight period of 29 June to 23 September. Three of the dissected specimens were found to be females of Remm's Rustic *Mesapamea remmi*.

The appearance of the genitalia in each case was exactly as described by Jordan (1989. *Ent Rec.* **101**:161-165) but it may be emphasised just how striking were the two *large chitinised ridges leading to the ostium*, a point made by Bailey & Brown (2005. *Ent. Rec.* **117**: 140-141). In each case, as soon as the prepared abdomen was examined under the microscope, even before any scales were removed, the ridges represented by two large bulges on the ventral surface of the abdomen were immediately obvious.

It is interesting to note that although the Common Rustic aggregate was on the wing for a period of almost three months, from late June until late September, each of the three Remm's Rustics appeared early in the flight period (and within almost a fortnight of each other) on 15 July, 18 July and 30 July respectively. This finding is in accord with the results of other workers: Jordan's specimens were taken on 13 July 1985 (male), 30 July 1985 (female) and 4 August 1984 (female), and Bailey & Brown's specimen, also a female, on 18 July 1994.

Clearly, Remm's Rustic is an uncommon species. In this small study the three specimens represented 0.9% of the total sample. In Jordan's larger series of over 600 dissections, three specimens represented approximately 0.5% of the total, a figure comparable with that of Rézbányai-Reser who found nine specimens in over 2000 dissections (quoted in Jordan *op. cit.*).

I am grateful to Dr Phil Sterling for checking the first of my *remmi* dissections. —
P. D. M. Costen, La Broderie, La Claire Mare, St. Peter's, Guernsey GY7 9QA.
(E-mail: pcosten@guernsey.net)

Editorial Comment: The status of *remmi* as a valid species is the subject of some debate and it may be little more than a hybrid between *secalis* and *didyma*. The three specimens referred to in this Note by Peter Costen, together with three each of both *secalis* and *didyma* from the same trap site are currently in my possession awaiting transfer to the Biodiversity Institute of Ontario at Geulph University in Canada where the DNE bar-coding project will hopefully help to clarify the situation. Further (dissected) examples of *remmi* that have been killed by freezing rather than by any chemical means would be useful and are welcomed at the editorial address; ideally they will also be accompanied by a couple of examples of both *secalis* and *didyma* from the same locality and year.

***Atlantopsocus adustus* (Hagen) (Psoc: Psocidae) new to Britain from East Cornwall – a correction**

Elipsocus pusillus Lienhard was mentioned as occurring with the *Atlantopsocus adustus* in my previous note (*antea*: 76), but this was a mistake for *E. pumilus* (Hagen). *E. pusillus* is not known from Britain. Thanks to Bob Saville for drawing my attention to this error.— Keith N. A. Alexander, 59 Sweetbrier Lane, Heavitree, Exeter EX1 3AQ (E-mail: keith.alexander@waitrose.com).

CLEPSIS CORIACANA (REBEL, 1894) (LEP: TORTRICIDAE) NEW TO BRITAIN

DAVID MANNING

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Abstract

Clepsis coriacana (Rebel) (Lep: Tortricidae) is added to the British fauna on the basis of a specimen taken in Bedfordshire during August/September 2006. The male genitalia of the specimen is illustrated. The female genitalia and the adult moth from other sources.

Introduction

A Rothamsted Insect Survey trap was operated by Dr. David Smith in an urban garden in Ampthill, Bedfordshire (O.S. grid reference TL 038380) between 2004 and early 2007. Phil Gould of Rothamsted Research has separated the microlepidoptera from the trap, and forwarded these to me for identification. Specimens caught between 13 August and 9 September 2006 included a very worn moth, 12mm wingspan, which I dissected. The male genitalia appeared to be of a *Clepsis* species, but could not be matched with the species in *Tortricidae of Europe* (Razowski, J., 2002). Images of the male genitalia were sent to Dr. Józef Razowski who kindly identified the moth as *Clepsis coriacana* (Rebel, 1894).This is the first record in Britain for this species.

Description

The following is based on the description in the revision of the genus *Clepsis* (Razowski, J., 1979)

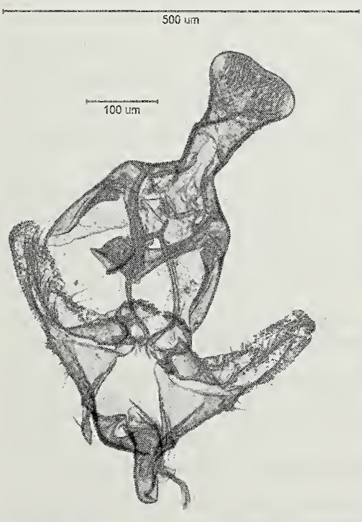

Figure 1. *Clepsis coriacana* (Rebel), Ampthill, Bedfordshire, 2006. Male genitalia. Image by Dr Chris Carter, enhanced using "paxit" software.

Wing-span: 12-16mm. Male without costal fold, forewing slender, indistinctly convex beyond basal third, termen oblique, not sinuate. Female (Plate I): with forewing slightly narrower, with costa more straight beyond basal curvature, termen more oblique, slightly sinuate. Forewing ground colour pale ochreous brown, with more or less distinct brownish admixture. Pattern brownish: a weak basal blotch on dorsum; median fascia, usually interrupted sub-costally and fused with the pre-apical spot, which is an elongate streak directed towards the middle of the median fascia; termen marked with darker spots or suffusion. Cilia concolorous with forewing, with a darker central line. Hindwings ochreous grey, paler apically. Cilia concolorous, with a darker central line.

Variation: The forewing markings are sometimes reduced, with the basal patch absent

or represented by several small suffusions. Unicolorous males are rather rare, but monochrome females occur more frequently, usually brownish ochreous.

Male genitalia (Figure 1): Tegumen proportionately large, uncus strongly expanding in terminal third; arm of gnathos broadening towards very broad terminal part. Valva slender; sacculus with sharp, rather short, postmedian prominence on ventral edge. Aedeagus fairly long, tapering terminally, with three long spine-like cornuti.

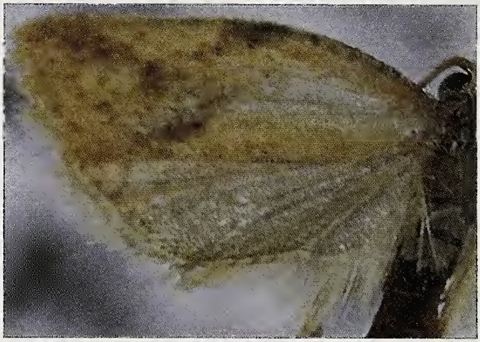

Plate I. *Clepsis coriacana* (Rebel). La Gomera, Canary Islands, 3.viii.2006, Philippe Geniez, photographed by Terence Hollingworth.

Figure 2. *Clepsis coriacana* (Rebel), Female genitalia (from Razowski, 1979)

Female genitalia (Figure 2): Sterigma delicate, with rounded proximal corners, deeply concave dorso-medially, convex distally. Antrum long, delicately sclerotised, tapering proximally. Cestum long, strongly broadening at corpus bursae. Signum provided with large capitulum but with indistinct basal sclerite.

Biology and Distribution

In the revision of the genus *Clepsis* (Razowski, J., 1979) the larva is stated to feed in several generations throughout the year. Foodplants include species in the genera *Artemesia, Cistus, Lotus, Rhamnus, Rubus* and *Rumex*. The imago occurs in most months, from January to June and August to December.

Distribution: Canary Is. (Tenerife) and Morocco. The first European record of this species is from Gibraltar on 9.iii.2006 (Clifton, 2007.)

Taxonomic position in British checklist

Mr. Kevin Tuck at the Natural History Museum, London, has confirmed that in the revision of the genus *Clepsis* (Razowski, 1979) this species lies between *Clepsis spectrana* and *Clepsis consimilana*, and the order of species corresponds well with Bradley's checklist (Bradley, 2000). *Clepsis coriacana* (Rebel, 1894) can therefore be allocated a Bradley number of 993a.

Acknowledgements

I would like to thank all those mentioned here for their help in the production of this article. Mr. Kevin Tuck at the Natural History Museum, London, kindly provided extracts from Razowski (1979).

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Additional evidence supporting the migration of *Cornifrons ulceratalis* Lederer (Lep.: Crambidae, Evergestinae) in the Mediterranean region in October 2006

It was interesting to read the note by Michael & Brenda Marney (*antea*: 56-58), concerning the events surrounding the discovery of *Cornifrons ulceratalis* (Lederer) in France, as this agrees with our own findings in the Balearic Islands during the same period.

Cornifrons ulceratalis was listed from the Balearic Islands in a distribution table in Goater, B., Nuss, M. & Speidel, W. 2005. Pyraloidea I. *Microlepidoptera of Europe* **4** (p. 183), but without any specific mention of the record in the text. The basis for this citation was a specimen (or specimens) identified by Barry Goater from material collected in or near the Albufera Natural Park (s'Albufera), Mallorca (B. Goater pers. comm.). However, NJR (who maintains a database of the species occurring in s'Albufera), has no record of this species in the database. A voucher specimen was, however, taken by MRH at light at Sa Roca, s'Albufera, Mallorca, on 16 April 2006, during light trapping undertaken as part of the Albufera Initiative of Biodiversity. The Albufera Initiative of Biodiversity has, for many years, operated a Robinson moth trap at s'Albufera on all suitable nights for prolonged periods in spring and autumn – and occasionally at other times of the year – as part of a wide ranging ecological programme of monitoring and management-related field research for the Park and the Balearic Government.

In October 2006 (commencing on the day after MRH had left the island to return to the U.K!), seven specimens of *C. ulceratalis* were taken at light at s'Albufera. Five on 25 October and one on 26 October (by NJR) and one on 28 October (by IF). Several specimens were also taken between 24 and 28 October on Menorca, at an

80w blended light run by Rob Edmunds who was on holiday at the time in Alaior, Menorca (Rob Edmunds, pers. comm.). These represent the first records for that island. The weather on the Balearics at the time was similar to that given for France in the above-mentioned article. The arrival of *C. ulceratalis* coincided with a large mass of air moving up from the Sahara. During that period, an elongated reddish cloud hung low over the Formentor Peninsula (almost due north of s'Albufera) but the rest of the skies above Mallorca were cloud-less. The cloud over Formentor was caused by warm air rising from the sea condensing against particles of Sahara dust held in suspension. What appears to have happened is that a dense mass of warm air in Saharan Africa rose, probably rapidly, lifting with it insects and particles of sand or red dust. The mass of air then moved northwards into the Mediterranean region, depositing the dust and associated insects on the north of Mallorca. Other potential migrants taken at Sa Roca at around the same time are given in the table below:

	Oct. 24	Oct. 25	Oct. 26	Oct. 27	Oct. 28
Spodoptera exigua (Hb.)	52	68	56	193	257
Spodoptera cilium (Gn.)	25	48	57	83	106
Earias insulana (Bdv.)	0	0	0	1	1
Utetheisa pulchella (L.)	0	0	0	5	3
Spoladea recurvalis (Fabr.)	2	1	0	3	6
Nomophila noctuella (L.)	2	5	6	58	40

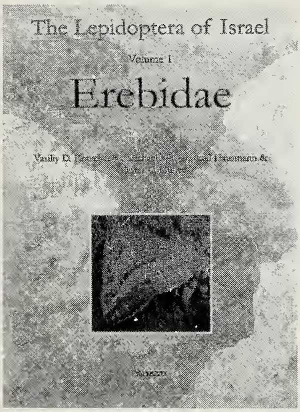
In addition, four specimens of *Spoladea recurvalis* (Fabricius) were taken at Sa Roca on 31 October and singletons on 1 November, 4 November and 18 November, plus two more *Utetheisa pulchella* (L.) on both 31 October and 1 November. For at least some of the species mentioned, population levels in the Mediterranean region must have been quite high as a swarm of 50 or more *Spoladea recurvalis* were observed in lank vegetation in the Sous Estuary area, Morocco, in November 2006 (NJR pers. comm.).

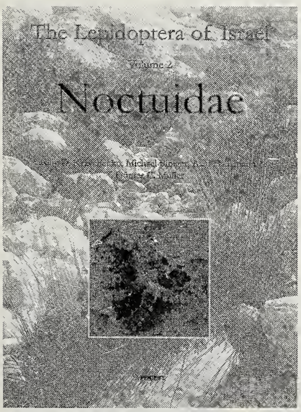
According to Goater *et al.* (*op. cit.*, p. 99), larvae of this species found in Algeria feed on *Henophyton deserti* (Coss. & Dureiu) Coss. & Dureiu (Brassicaceae) and the introduced *Sesamum indicum* L. Sesame (Pedaliaceae), in spun tips of the shoots. Neither species is recorded from the Balearics on the *Herbari Virtual* website (http://herbarivirtual.uib.es; accessed December 2006), so it is unlikely that the moth is resident on the islands (unless it utilises a different pabulum).

The adult flight period is recorded in the literature as October to May, probably in one extended emergence. This fits with the date of capture of all the specimens cited here. It will be interesting to see if the species is recorded again in the coming years or if it manages to become established.— Martin R. Honey, Department of Entomology, Natural History Museum, Cromwell Road, London SW7 5BD (Email: m.honey@nhm.ac.uk), Inmaculada Férriz, TAIB group, c/Venda de Santa Maria, nº5, casa 3, 07800 Sta. Gertrudis, Eivissa, Spain & Nick J. Riddiford, The Albufera Initiative for Biodiversity, Schoolton, Fair Isle, Shetland ZE2 9JU.

BOOK REVIEWS

The Lepidoptera of Israel edited by **Müller, G.C., Kravchenko, V.D., Hausmann, A., Speidel, W., Mooser, J. & Witt, T. J**. Hardback, 220 × 290 mm. **Volume 1: Erebidae** by **Kravchenko, V. D., Fibiger, M., Hausmann, A. & Müller, G. C.** 168 pp., 132 maps, 48 colour plates, ISBN: 987 954 642 287 3 (Pensoft *Series Faunistica* No 62) and **Volume 2: Noctuidae** by **Kravchenko, V. D., Fibiger, M., Hausmann, A. & Müller, G. C.** 320 pp., 424 maps, 38 colour plates, ISBN: 987 954 642 288 0 (*Pensoft Series Faunistica* No 63). Pensoft Publishers, Sofia-Moscow, 2007. €78 (volume 1); €110 (volume 2) plus postage, from the publishers direct at Geo Milev Str. 13a, 1111 Sofia, Bulgaria (E-mail: info@pensoft.net; web site: www.pensoft.net).





The series "The Lepidoptera of Israel" is intended to cover more than one thousand species of macrolepidoptera from Israel and adjacent territories, with complete and up-to-date information concerning their taxonomy, distribution, habitat preferences, seasonal activity and host plants interactions. These volumes are the first two of the series; that concerned with the Erebidae, covers the 128 species known to occur in Israel whilst the second covers the remaining 420 species of the Noctuidae. The family Erebidae in the Near East contains 9 subfamilies: Rivulinae, Hypenodinae, Eublemminae, Herminiinae, Hypeninae, Phytometrinae, Calpinae, Catocalinae and Euteliinae. The systematic position of the Erebidae as a distinct family is questionable and most authors treat it as a subfamily of Noctuidae. In these books it unites the "quadrifid" subfamilies of Noctuidae.

The introductory section presents useful information on the Methodology, Zoogeography and Chorotypes, Ecotypes, Countryside, etc with brief explanations of the terms used. After a systematic checklist of the taxa included in each volume the main species texts follow. Species are numbered, being given the same numbers in the illustrations, on the plates and on the distribution maps. For each species the following information is given: Scientific name, Author's name and year of description, Type locality, General distribution pattern, Distribution in the Levant, First record in Israel, Distribution in Israel, Habitat, Phenology, Host-plants and Remarks. The data come from numerous quoted literature sources, author's observations and personal communications from their collaborators in the extensive collecting which was undertaken over the twenty years from 1986 to 2006. Each volume ends with two indices – one of the scientific names of the moths and another of the plants. All species are illustrated, mostly by more than one specimen, at life size in the fifty high-quality colour plates (12 in Volume 1; 38 in Volume 2). These technically excellent illustrations of high-quality specimens permit correct identification of fresh insects, but for certain identification of worn material examination of

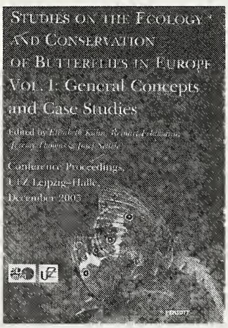
the genitalia is essential; it is unfortunate that such drawings are not included. There are numerous additional plates depicting the diversity of moth habitats all over the country as well as colour maps indicating geography, vegetation types, climatological regions and the chronological types of plant distribution. The distribution maps cover not only Israel within its (perhaps questionable) political borders, but also cover territory within neighbouring countries. Although, strictly, this contradicts the title of the work I found this expansion a definite advantage.

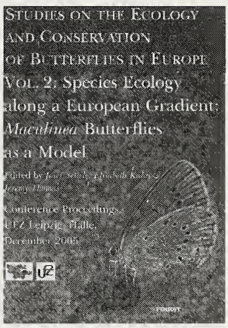
The fauna of Israel is well explored, but until now the information has been scattered in many difficult to find journals; for this reason alone these two books are well worth having and I strongly recommend them to both amateurs and professionals interested in the moths of Europe, the near east, the subtropics of the Old World and the Paleotropics. They will be of use to those interested in Nature History, Nature Conservation, Biodiversity and Biogeography of the Near East.

STOYAN BESHKOV
National Museum of Natural History, Sofia 1000, Bulgaria

Also received by the Editor from Pensoft Publishing, Bulgaria

Studies on the ecology and conservation of butterflies in Europe. Volume 1 – General concepts and case studies (ISBN: 954 642 247 9) €39 and **Volume 2 – Species ecology along a European gradient: *Maculinea* butterflies as a model** (ISBN: 954 642 256 8) €55. Both hardbound, 170 × 242 mm.

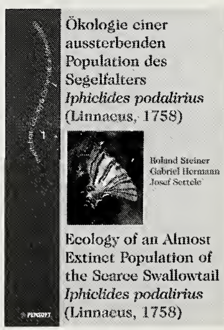




A compilation of papers presented to a conference on the "Ecology and conservation of butterflies in Europe" at Leipzig-Halle in December 2005. Essential reading for anyone seriously concerned with the conservation of butterflies anywhere in Europe.

Ecology of an almost extinct population of the Scarce Swallowtail *Iphiclides podalirius* (Linnaeus, 1758) by **Steiner, R, Hermann, G. & Settele, J.** Paperback, 164 × 236 mm, 172 pp. Volume 1 in the series *Invertebrate ecology and conservation monographs*, ISSN: 1312 9082, published 2007. €60

The results of an extensive study of a formerly large meta-population in south-west Germany. In German with an English summary.



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Book Review

THE ENTOMOLOGIST'S RECORD
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Continued on inside back cover

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Vol. 119 **Part 6**

THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

Edited by

C.W. PLANT, B.Sc., F.R.E.S.

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MICROLEPIDOPTERA REVIEW OF 2006

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Abstract

Noteworthy records of microlepidoptera collected during 2006 are summarised, including nine species new to the British Isles and many new vice-county records.

Introduction

Over 70 microlepidopterists have again contributed valuable records to help clarify the distribution and status of Britain's microlepidoptera. We now know incomparably more about all of this than we did even 10 years ago and this wealth of data is not only of great intrinsic interest, letting us ponder the causes of the distribution of our species, but also helps attempts to identify those species in need of urgent conservation action. We can with growing confidence point out species which are exceptionally localised and so perhaps deserving particular attention. Unfortunately, however, the list of species recently completed by the Joint Nature Conservation Committee as taking priority, the Biodiversity Action Plan Priority list, does not use extreme localisation and rarity as one of the criteria for species inclusion. It is necessary to show that decline has taken place, or that there is an imminent threat, and this is information that often we cannot provide with any reliability. In consequence, amongst a long list of larger Lepidoptera, we find only 25 micros, although this is a welcome increase over previous priority lists. Most of these species are those for which a decline is claimed, based on the current infrequency of capture by those knowledgeable microlepidopterists who are old enough to remember the past relative abundance! However, even the coarse distribution scale provided by the vice-county maps has been sufficient to substantiate some declines and so we must be clear that what we are doing does contribute significantly to moth conservation, as well as being such a rewarding and exciting hobby. Any microlepidopterist who is familiar with the location and habits of a rare species would do well to monitor its status, even if this monitoring was rather casual in nature.

2006 was a quite exceptional year as far as the climate is concerned and can be summed up succinctly. March was cooler than the long-term average, but every other month was either slightly warmer than usual, or often very much warmer. Overall it was a long hot year. Mid-summer was generally also atypically sunny, but rainfall was much more variable, with a dry start to the year, a rather wet spring, a very dry mid-summer and then a wet autumn and winter. We might speculate about the effect of two trends that have become very noticeable in recent years, namely hot, dry summers and mild winters. The long-term effects on moth populations may not yet be clear but it is obvious that the normal phenology of many species has broken down, with many early and late records, as all recorders agree.

Nine species have been recorded as new to the British Isles. *Stathmopoda auriferella* Walker was bred from imported pomegranates and *Uresiphita reversalis* (Guenеé) was found in Somerset, being new to both the British Isles and Europe, probably having been blown across from its normal home in eastern North America on strong winds which also assisted the passage of some Nearctic birds. It is likely that *Hodebertis testalis* (Fabricius), which was found in the Isles of Scilly, was also a stray, this time from southern Europe, whereas two other new species may have been introduced on their foodplant. *Zelleria oleastrella* (Millière) was found in three locations and may have arrived with olive trees, which are now being more widely planted in southern England, whereas *Bucculatrix ulmifoliae* M. Hering has been found breeding in one location only, but is well established on an avenue of hybrid elms, which were planted in the hope that they would be resistant to Dutch elm disease. *Hypatoga binotella* (Thunberg) was found in north Hampshire, a specimen in pristine condition, perhaps indicating a previously overlooked colony. A single specimen of *Clepsis coriacana* (Rebel) was identified from a month's collection of micros from a RIS trap in Bedfordshire. Its status here and its origin remain a mystery. Several specimens of *Prays peregrina* Agassiz have been recorded in Greater London. The species is presumed to be adventive having arrived from who knows where, and might even now be resident. Finally, *Phyllocnistis ramulicola* Langmaid and Corley is now known to be abundant on native sallows in one very well recorded Hampshire locality and so may be a newly arrived resident. However, its origins are obscure because it was undescribed on discovery and has elsewhere only so far been recorded in Portugal.

Several species continue to expand their range significantly. *Cameraria ohridella* Deschka & Dimichas now reached Yorkshire in the north and Cheshire and Devon in the west and *Cosmopterix pulchrimella* Chambers has spread east along the south coast to Hampshire and also up into Somerset. *Vitula biviella* (Zeller) has also consolidated its range in the south-east, reaching Hertfordshire and East Suffolk. Of course some species have been found well beyond their previously known range but have probably just been overlooked and two notable examples have been found very much further south than before. *Acleris effractana* (Hübner) is now recorded at Malham Tarn, an upland site in North Yorkshire and *Ancylis tineana* (Hübner) from Whixall Moss in Shropshire. The former was probably previously overlooked as *A. emargana* (Fabricius), and the latter is only easily found once its larval habit on stunted birch in wet areas is familiar.

Two species are notable for having been found after the lapse of many years. *Tinea lanella* Pierce & Metcalfe was last seen in 1922 and *Stenoptinea cyaneimarmorella* (Millière) was previously seen only in 1876, 1893, 1901 and 1944. In addition, the new records of *Pammene ignorata* Kusnetsov are the 2nd and 3rd British specimens. Tineids and *Pammene* species are notoriously difficult to find and determine.

There has been an upsurge in recording in Wales, resulting in seven newly recorded species and five are also noted as new to Ireland, including the upland speciality *Udea uliginosalis* tephens, which may not have been expected. Special mention must be made of the new Irish checklist (Bond, Nash and O'Connor, 2006

An Annotated Checklist of the Irish Butterflies and Moths (Lepidoptera) Irish Biogeographical Society and National Museum of Ireland), which summarises the species recorded there and will surely prompt more recording and perhaps the unearthing of previously overlooked species. Rather quaintly the authors give each family of moths an English name and many, such as 'Concealer moths' for the Oecophoridae or the 'Twirlers' for the Gelechiidae, may surprise many! In contrast only two species have been recorded new to Scotland.

We also very much welcome the species index produced by David Agassiz (Index to Microlepidoptera Reviews 1980-2004 *Ent. Rec.* **118** (Supplement)), which greatly improves the utility of the series of reviews, and would encourage other brave souls to index the vice-counties, or perhaps to extract and collate all the new information on life histories that has been published here.

We have already received new records for 2007 and welcome more, preferably with national grid references and as WORD files sent to JRL's email address. Please try to use the standard format, to reduce the tedious need for re-typing. We are very grateful to the small army of enthusiasts who do send us so many interesting data.

In 2006 we have received records from the following recorders, each indicated in the text by his or her initials: D.J.L. Agassiz, M.V. Albertini, M.A. Bailey, J.S. Baker, H.E. Beaumont, D.T. Biggs, K.P. Bland, S.D.S. Bosanquet, T. Bryant, S.P. Clancy, J. Clifton, G.A. Collins, P.D.M. Costen, A.M. Davis, J.R. Dawson, B. Dickerson, R.J. Dickson, S. Dunlop, R.D. Edmunds, B. Elliott, R. Elliott, D.W. Emley, C.H. Fletcher, T.H. Freed, S.V. Gauld, R.G. Gaunt, R.W. Goff, B. Goodey, A.N. Graham, J.E. Graham, N. Gregory, D. Grundy, M.W. Harper, M.C. Harvey, R.J. Heckford, B.P. Henwood, R.I. Heppenstall, J.B. Higgott, S.H. Hind, M.R. Honey, S.A. Knill-Jones, J. Knowler, J.C. Koster, J.R. Langmaid, A.D. Lewis, N.R. Lowe, J.A. McGill, D.V. Manning, A. Musgrove, E. O'Donnell, M. O'Donnell, R.M. Palmer, S.M. Palmer, M.S. Parsons, C.W. Plant, J. Porter, A.W. Prichard, K. Saul, A.N.B. Simpson, M.P. Skevington, D.J. Slade, C. Smith, E.G. Smith, I.F. Smith, M.H. Smith, P.H. Sterling, N.J. Stone, T.J. Tams, R. Terry, I.R. Thirlwell, L.A.C. Truscott, A. Tyner, R.W.J. Uffen, M.R. Young. Other recorders are named in full.

Journals are abbreviated as follows: *Ent. Rec.* for *Entomologist's Record and Journal of Variation: Ent. Gaz.* for *Entomologists' Gazette; BJENH* for *British Journal of Entomology and Natural History* and *Atropos* is named in full. RIS refers to Rothamsted Insect Survey and VCH to Victoria County History. New vice-county records are shown with the VC number both underlined and in **bold** type.

SYSTEMATIC LIST

MICROPTERIGIDAE

5 *Micropterix calthella* (Linn.) — Keiss ND352609 (**109**) 3.vii.2006 — MRH

ERIOCRANIIDAE

6 *Eriocrania subpurpurella* (Haw.) — Glasbury SO1839 (**43**) 29.iv.2006, det. NRL — P.J. & V.F. Clarke *per* AMD; Barnland T145638 (**H12**) 23.iv.2006, genitalia det. K.G.M. Bond — MO'D

9 *E. sparrmannella* (Bosc) — Ogston Carr Wood SK3659 (**57**) tenanted mines on *Betula* 12.vii.2006 — SHH

10 *E. salopiella* (Staint.) — Ogston Carr Wood SK3659 (**57**) vacated mines on *Betula* 12.vii.2006 — SHH

NEPTICULIDAE

20 *Ectoedemia decentella* (H. - S.) — Thetford TL8384 (**26**) 11.vi.2006 — SPC; Saltburn NZ6521 (**62**) 11.vi.2006, det. HEB — D. Money *per* HEB

21 *E. sericopeza* (Zell.) — Staplegrove ST2126 (**5**) 6.ix.2006, genitalia det. PHS — JAMcG; St Helens SJ5195 (**59**) 21.ix.2006 genitalia det. SMP — D. Owen *per* SMP

24a *E. hannoverella* (Glitz) — Aylesford TQ733589 (**15**) and Halling TQ705643 (**16**) mines in green islands in fallen leaves of *Populus* x *canadensis* 10.xi.2006 — DJLA & JRL; Milton TL4661 (**29**) mines on *Populus x canadensis* 20.xi.2006 — I. Barton *per* JRD.

29 *E. atricollis* (Staint.) — Trawscoed SH848323 (**48**) tenanted mine on *Crataegus* 22.ix.2006 — ANG & JEG; Carrickfergus 54.72569N 5.87318W (**H39**) mines on *Crataegus monogyna* 22.ix.2006 — JCK

36a *E. heringella* (Mariani) — Buckingham Palace Gardens (21) tenanted mines on *Quercus cerris*, a previously unrecorded foodplant, 21.xi.2006 — THF

41 *E. atrifrontella* (Staint.) — Coed Fenni-fach SO0128 (**42**) mines in bark of sapling oaks 26.iv.2006 — NRL & JRL, **New to Wales**

42 *E. septembrella* (Staint.) — Newtownwards 54.54951N 5.59621W (**H38**) mines on *Hypericum* sp. 21.ix.2006 — JCK

48 *Trifurcula cryptella* (Staint.) — Minsmere RSPB TM4767 (25) tenanted mines on *Lotus pedunculatus* 18.vii.2006, first confirmed county record — JRL & JBH

54a *Stigmella pretiosa* (Hein.) — Glen Fender Meadows NN8969 (**89**) mines in *Geum rivale* 7.x.2006 — KPB

55 *S. aeneofasciella* (H.-S.) — Sane Copse SP8554 (32) mine on *Potentilla reptans* 17.viii.2006, first confirmed county record — DVM; Pulford SJ3659 (**58**) tenanted mines on *Agrimonia* 9.x.2005 — SHH

59 *S. poterii* (Staint.) — Emer Bog SU3921 (11) tenanted mines on *Potentilla palustris* 19.ix.2005, moths bred, foodplant not previously mentioned in British literature — BE

65 *S. speciosa* (Frey) — Talybont Forest & Reservoir SO1019 (**45**) vacated mines on *Acer pseudoplatanus* 15.x.2005 — NRL; Bilsborough SD5039 (**60**) vacated mine on *Acer pseudoplatanus* 1.xi.2006 — K. McCabe *per* SMP

72 *S. myrtillella* (Staint.) — Benyon's Enclosure SU6263 (**22**) mine on *Vaccinium myrtillus* 14.xi.2004 — G. Dennis *per* MCH

73 *S. trimaculella* (Haw.) — Carrickfergus 54.72569N 5.87318W (**H39**) mines on *Populus* sp. 22.ix.2006 — JCK

74 *S. assimilella* (Zell.) — Leckhampton Hill SO9519 (**33**) mine on *Populus tremula* 18.x.2006 — G.H.J. Meredith *per* RGG

82 *S. paradoxa* (Frey) — Llwyn-iarth SH711172 (**48**) vacated mines on *Crataegus* 20.vii.2006 — ANG & JEG

85 *S. suberivora* (Staint.) — Abergavenny SO295141 (**35**) vacated mine on *Quercus ilex* 3.iv.2006 — JRL

88 *S. samiatella* (Zell.) — Benyon's Enclosure SU6263 (**22**) mine on *Castanea sativa* 24.x.2003 — G. Dennis *per* MCH; Myarth SO1820 (**42**) vacated mines on *Castanea* 21.viii.2006 — JRL

90 *S. tiliae* (Frey) — Fir & Pond Wood NR TL276011 (**21**) vacated mines on *Tilia* sp. 19.x.2006 — RT

104 *S. magdalenae* (Klim.) — Crabtree Hill SO6313 (**34**) mine on *Sorbus aucuparia* 15.x.2006 — G.H.J. Meredith *per* RGG

114 *S. glutinosae* (Staint.) — Crickhowell SO2118 (**42**) tenanted mines on *Alnus glutinosa* 2.x.2006 — JRL

118 *Enteucha acetosae* (Staint.) — Selworthy SS9049 (**5**) tenanted and vacated mines on *Rumex acetosa* 15.ix.2006 — JAMcG

OPOSTEGIDAE

119 *Opostega salaciella* (Treits.) — Bishopton NS433694 (**76**) 22.vii.2006 — NG; Tomintoul NJ165192 (**94**) 4.viii.2006 — T. Boardman *per* MRY

121 *Pseudopostega crepusculella* (Zell.) — Hempsted SO8218 (**33**) 23.vi.2006 — G.R. Avery *per* RGG; Cors-Goch SH5081 (52) 18.vii.2006, first confirmed county record — KPB

INCURVARIIDAE

128 *Phylloporia bistrigella* (Haw.) — Ravenstone Road Copse SP8553 (32) tenanted mines on *Betula pendula* 15.vi.2006, first confirmed county record — DVM

129 *Incurvaria pectinea* Haw. — Fishleigh SS540063 (**4**) cut-outs on *Corylus avellana* 15.ix.2006 — S.D. Beavan and RJH; Fleet SU793539 (12) tenanted mines on *Tilia cordata* 4.vi.2006, moth bred, previously unrecorded foodplant in Britain — RDE, *Ent. Rec.* **119**: 228-229

PRODOXIDAE

137 *Lampronia morosa* Zell. — Spurn TA4115 (**61**) 5.vi.2005, det. HEB — B.R. Spence *per* HEB

138 *L. fuscatella* (Tengst.) — Parkend Walk SO6007 (**34**) gall on *Betula* sp. 2.iv.2006 — G.H.J. Meredith *per* RGG

ADELIDAE

143 *Nematopogon metaxella* (Hübn.) — Cannock Chase SK00432058 (39) 1.vii.2006, first confirmed county record — D.C. Gardner *per* DWE

144 *Nemophora fasciella* (Fabr.) — Earith TL390751 (**31**) 2.vii.2006, genitalia det. BD — D. Griffith *per* BD; Bushy Grove SO6900 (**34**) two 21.vii.2006 — C. Wiltshire *per* RGG

145 *N. minimella* ([D. & S.]) — Pontyspig SO287208 (**35**) 17.vii.2006 — SDSB; Earlypier NT2449 (**78**) 23.vii.2006 — KPB; Cambus o'May NO4299 (**92**) 13.vii.2005 — H. Rowe per RMP

149 *Adela cuprella* ([D. & S.]) – Allt Arda, near Corglass NJ1542 (**95**) 18.v.2006 – D. Barbour *per* MRY

150 *Adela reaumurella* (Linn.) — Barnland T145638 (**H12**) 25.v.2006 — MO'D

HELIOZELIDAE

159 *Antispila treitschkiella* (F.v R.)— Kingfishers Bridge, Wicken TL5472 (**29**) vacated mine on *Cornus sanguinea* 3.xi.2006 — I. Barton *per* JRD

PSYCHIDAE

175 *Narycia duplicella* (Geoff.) (= *monilifera* Geoff.) — Morkery Wood TF9518 (**53**) larval case 22.iii.2006 — RWG; Thorp Perrow Arboretum SE2585 (**65**) larval case 9.iii.2006, moth bred, det. HEB — CHF

179 *Dahlica lichenella* (Linn.) — Edale SK146864 and Chapel-en-le-Frith SK074819 (**57**) cases on stone walls 10.iv.2006, moths bred — IFS

181 *Taleporia tubulosa* (Retz.) — Monks Wood TL200797 (**31**) in RIS trap 31.v – 6.vi. 2005, det. DVM — BD

183 *Bacotia claustrella* (Bruand) — Elveden Forest TL 7980 (**26**) 5.vii.2006, genitalia det. — HEB

185 *Luffia ferchaultella* (Steph.) — Braunton Burrows SS464345 (**4**) one larval case 21.iv.2006, moth bred — S. Hatch *per* RJH

188 *Proutia betulina* (Zell.) — Cliffe Marshes TQ727767 (**16**) one case on birch trunk 5.v.2006 — S. Gibson *per* DJLA

191 *Acanthopsyche atra* (Linn.) — Knotbury Moor SK022682 (**39**) cases attached to wooden fence 29.iv.2006, moth bred by IFS — SHH

TINEIDAE

196 *Morophaga choragella* ([D. & S.]) — Kate's Bridge TF1014 (**53**) 8.vii.2006 — RWG

198 *Dryadaula pactolia* Meyr. — Castle Coole H2543 (**H33**) at rest on oak trunk 17.viii.2006, det. IRT & JRL — K.N.A. Alexander *per* MSP, **Second Irish record**

200 *Psychoides filicivora* (Meyr.) — Great Malvern SO774457 (**37**) 2005 — R. Homan *per* ANBS

203 *Infurcitinea argentimaculella* (Staint.) — Llanarthne SN519182 (**44**) larval tube in *Lepraria* sp. 4.ii.2006 — DJS; Grosmont NZ828051 (**62**) larval tubes in *Lepraria* sp. 18.ii.2006 — RDE. *Ent. Rec.* **118**: 141

206 *Stenoptinea cyaneimarmorella* (Mill.) — Rewell Wood (**13**) 2.vii.2006, det. JRL — BE

216 *Nemapogon cloacella* (Haw.) — Baronscourt H3582 (**H36**) 16.v.2006, det. MSP — K.N.A. Alexander *per* MSP

217 *N. wolffiella* Karsh. & Niels. — Heronry Wood, Fishleigh SS547063 (**4**)10.vi.2006, genitalia det. RJH — S.D. Beavan & RJH; Minsmere RSPB TM4767 (**25**) 29.vi.2006, genitalia det. — JBH

218 *N. variatella* (Clem.) — Rushmere St Andrew TM2043 (**25**) 18.vi.2006, genitalia det. — JBH

227 *Monopis laevigella* ([D. & S.]) — Barnland T145638 (**H12**) 14.viii.2005, genitalia det. K.G.M. Bond — MO'D; Stamullen O146662 (**H22**) 11.v.2006 — EO'D

230 *M. crocicapitella* (Clem.) — Rushmere St Andrew TM2043 (**25**) 18.vii.2006 — JBH & JRL; Broadholme SK8974 (**53**) 15.vi.2006 — M. Gray *per* CS

238 *Niditinea striolella* (Mats.) — Fir & Pond Wood NR TL276011 (**21**) 16.vi.2006, genitalia det. — RT

239 *Tinea columbariella* Wocke — Old Weston TL099774 (**31**) 16.vi.2006, genitalia det. BD — K. Royles *per* BD

241 *T. lanella* P. & M. — Welwyn TL2417 (**20**) many indoors in 2006, genitalia det. — RWJU, **first British record since the species was discovered at Liverpool in 1922**

243 *T. dubiella* Staint. — Orford Ness NNR TM4349 (**25**) 27.vi.2004, genitalia det. JBH — M. Marsh & J. Askins *per* JBH

247 *T. trinotella* Thunb. — Higher Nichols Nymett SS691021 (**4**) 19.vii.2006 — S.D. Beavan *per* RJH; Barnland T145638 (**H12**) 9.vi.2006 — MO'D

BUCCULATRICIDAE

265 *Bucculatrix cristatella* (Zell.) — Whittington Lodge Farm SP0121 (**33**) vacated cocoon on *Achillea millefolium* 10.viii.2006 — R. Homan *per* RGG

266 *B. nigricomella* Zell. — Glasbury SO1839 (**43**) 9.viii.2006, det. NRL — P.J. & V.F. Clarke *per* AMD

267 *B. maritima* Staint. — Barry Buddon NO5032 (**90**) mines on *Aster tripolium* 15.x.2006 — KPB

272 *B. cidarella* Zell. — Aboyne NO5197 (**92**) larva on *Alnus glutinosa* 15.ix.2006 — RMP

273 *B. thoracella* (Thunb.) — Cheltenham SO9519 (**33**) 21.vii.2006 — G.H.J. Meredith *per* RGG

274 *B. ulmella* Zell. — Cheltenham SO9519 (**33**) 18.vi.2006 — G.H.J. Meredith *per* RGG; Newtownwards 54.54951N 5.59621W (**H38**) mines on *Quercus robur* 21.ix.2006 — JCK

274a *B. ulmifoliae* M. Hering — Farnham SU8347 (**17**) mines and larvae on *Ulmus pumila* x *japonica* 15.x.2006, moths bred and genitalia det. JRL — JRL, JP & GAC, *Ent. Rec.* **119**: 195-201, **New to the British Isles**

275 *B. bechsteinella* (Bech. & Scharf.) — Cheltenham SO9424 (**33**) — R. Homan *per* RGG; Nantgwyn SN365238 (**44**) 8.vi.2006 — JSB

GRACILLARIIDAE

280 *Caloptilia cuculipennella* (Hübn.) — Willingham Forest TF1389 (**54**) 4.v.2006 — CS

281 *C. populetorum* (Zell.) — Morkery Wood TF9518 (**53**) 25.iv.2006 — RWG; Willingham Forest TF1389 (**54**) 12.ix.2006 — CS; Spurn TA4115 (**61**) 26.viii.2006, conf. HEB — B.R. Spence *per* HEB; Doncaster SK628985 (**63**) 8.viii.2006 — RIH

285 *C. azaleella* (Brants) — Llanishen, Cardiff ST17248228 (**41**) two on 16.v.2006 — DJS; Johnstown SN398198 (**44**) 13.viii.2006 — JSB; Bodnant Gardens SH7972 (**50**) larval spinnings on *Azalea* sp. 23.ix.2006 — KPB. **New to Wales**

290 *C. semifascia* (Haw.) — Carr Vale Nature Reserve, Bolsover SK4570 (**57**) vacated spinning on *Acer campestre* 13.ix.2006 — SHH

296 *Calybites phasianipennella* (Hübn.) — Icklesham TQ885159 (**14**) 27.x.2006, det MSP — I. Hunter *per* MSP; Johnstown SN398198 (**44**) 11.ix.2006 — JSB; St Annes SD3329 (**60**) 23.ix.2006 — J. Steeden *per* SMP, first confirmed VC record; Spurn TA4115 (**61**) 16.ix.2006, det. HEB — B.R. Spence *per* HEB

300 *Parornix loganella* (Staint.) — Barnland T145638 (**H12**) 5.vii.2006, genitalia det. K.G.M. Bond — MO'D

301 *P. betulae* (Staint.) — Loch Eynort, S. Uist NF7828 (**110**) larval spinning on *Betula* sp. 28.vi.2006 — MRY, MWH & JRL

316 *Phyllonorycter roboris* (Zell.) — Morkery Wood TF9518 (**53**) mine on *Quercus robur* 12.x.2006 — RWG

321 *P. messaniella* (Zell.) — Thorp Perrow Arboretum SE2585 (**65**) mines on *Quercus* sp. 3.ix.2006 — CHF

321a *P. platani* (Staud.) — Ely Cathedral TL8053 and Wicken TL5472 (**29**) mines on *Platanus x hispanica* 19.viii.2006, moths bred — I. Barton *per* JRD; Worcester SO856542 (**37**) mines on *Platanus* 16.x.2004 — ANBS; Cardiff ST178771 (**41**) mines

on *Platanus* 20.x.2006 — DJS; Shillingthorpe Hall TF074112 (**53**) mines on *Platanus* 9.x.2006 — RWG; Attenborough Arboretum, Leicester, SK6001(**55**) mines on *Platanus* 27.x.2006, det. M.A. Finch — G. Burton *per* MPS; Stockport SJ9088 (**58**) mines on *Platanus x hispanica* 29.x.2006 — SHH & E. Kearns; Stretford, Manchester SJ7994 (**59**) many tenanted mines on *Platanus x hispanica* 23.x.2006 — K. McCabe *per* SMP

330 *P. cerasicolella* H.-S. — Gelli Rhyd SO2419 & 2519 (**42**) mines on *Prunus cerasus* 27.xi.2006 — NRL & JRL

335 *P. salicicolella* (Sirc.) — Barnland T145638 (**H12**) 7.viii.2005, genitalia det. K.G.M. Bond — MO'D

342 *P. coryli* (Nic.) — Mill of Cammie NO6992 (**91**) mines on Corylus avellana 12.x.2006 — RMP

344 *P. strigulatella* (L. & Z.) — Ipswich TM1645 (**25**) mines on *Alnus incana* 30.x.2006 — JBH & JRL; Redmere Fen TL6585 (**28**) mines on *Alnus incana* 8.xi.2006 — I. Barton *per* JRD; Crickhowell SO2118 (**42**) mines on *Alnus incana* 2.x.2006, moths bred — JRL; Snakeholme NR TF117716 (**54**) 15.vii.2005 — CS

348 *P. quinqueguttella* (Stainton) — Burnt Common SU6264 (**22**) mine on *Salix repens* 2.x.2004 — G. Dennis *per* MCH

354 *P. emberizaepenella* (Bouché) — Lin's Mill NT1070 (**84**) mines on *Lonicera* 17.ix.2006 — KPB

359 *P. nicellii* (Staint.) — Mill of Cammie NO6992 (**91**) mines on *Corylus avellana* 12.x.2006 — RMP

363 *P. platanoidella* (Joannis) — Kingfishers Bridge, Wicken TL5472 (**29**) mine on *Acer platanoides* 3.xi.2006 — I. Barton *per* JRD; Bodnant Gardens SH7972 (**50**) mine on *Acer platanoides* 23.ix.2006 — KPB

366 *P. sagitella* (Bjerk.) — Oversley Wood SP1056 (**38**) mines on *Populus tremula* 6.viii.2005, moths bred — ANBS, MWH, DG et al.

366a *Cameraria ohridella* Deschka & Dimic — Avebury SU103703 (**7**) 20.vii.2006 — D. Brotheridge *per* EGS; Maidenhead SU8981 (**22**) tenanted mine 4.xi.2004, moth bred — D.J. White *per* MCH; Colwall SO757427 (**36**) mines on *Aesculus* ix.2006 — MWH; Worcester SO856542 (**37**) mines on *Aesculus* 10.vi.2006 — ANBS; Stratford-upon-Avon SP20225461 (**38**) mines on *Aesculus* 16.ix.2005 — M. Kennard & R. Ruban *per* NJS; Cardiff ST176767 (**41**) mine on *Aesculus hippocastanum* 30.ix.2006 — M. Powell & L. James *per* DJS; Llangynidr SO1419 (**42**) tenanted mines on *Aesculus hippocastanum* 22.x.2006 — NRL; Kate's Bridge TF106157 (**53**) mines 4.viii.2006 — RWG. **New to Wales**

367 *Phyllocnistis saligna* (Zell.) — Upper Lode SO883331 (37) vacated mines on *Salix fragilis* and *S. alba* 18.ix.2004, first county record since 1873 — R. Homan *per* ANBS

367a *P. ramulicola* Langmaid & Corley — Havant Thicket SU7210 (**11**) cocoons on *Salix cinerea* 19.ix.2006, moths bred and genitalia det. — JRL, *Ent. Gaz.* in press, **New to the British Isles, previously undescribed species**

368 *P. unipunctella* (Steph.) — Blackford NT2570 (**83**) 29.iv.2006; Almondbank NO0625 (**88**) vacated mines on *Populus nigra* 21.xi.2006 — KPB, **New to Scotland**

GLYPHIPTERIGIDAE

394 *Glyphipterix forsterella* (Fab.) — near Cornhill NJ5755 (**94**) 6.vi.2006 — R. Leverton *per* MRY

397 *G. thrasonella* (Scop.) — Keiss ND352609 (**109**) 3.vii.2006 — MRH

YPONOMEUTIDAE

403 *Argyresthia glabratella* (Zell.) — Higher Poynton SJ9483 (58) 10.vi.2006, genitalia det. — SHH

407 *A. dilectella* Zell. — Llangynidr SO1520 (42) 3.vii.2006 — JRL

409a *A. trifasciata* Staud. — Bullen Hill ST894579 (8) 8.vi.2006 — EGS & MHS; Dursley ST7499 (34) 3.vi.2006, det. RGG — A. Bendall *per* RGG; Llanishen, Cardiff ST17248228 (41) 30.v.2006 — DJS; Marske NZ6422 (62) 6.vi.2006, conf. HEB – D. Money *per* HEB

409b *A. cupressella* Wals. — Kingsdown TR3748 (15) 21.vi.2006 — N. Jarman *per* DJLA; Bishops Stortford TL487221 (20) 2.vi.2005 J. Fish & J. Reeves *per* RT; Elton SJ4575 (58) 18.vi.2005 — M. Barlow & S. Holmes *per* SHH; Pontefract SE4421 (63) 11-30.vi.2006, conf. HEB — J.W. Cooper *per* HEB; Tadcaster SE4742 (64) 16.vi.2006, conf. HEB — D. Baker *per* HEB

411 *A. goedartella* (Linn.) — Stamullen O146662 (H22) 4.viii.2006 — EO'D

416 *A. glaucinella* (Zell.) — Knowsley Safari Park SJ4693 (59) 19.vi.2006 — K. McCabe *per* SMP

423 *A. semitestacella* (Curt.) — Green Castle Woods SN3916 (44) 4.viii.2006 — JSB & P. Twining

426 *Yponomeuta malinellus* Zell. — Johnstown SN398198 (44) 14.vii.2006 — JSB

435 *Zelleria hepariella* Staint. — Newport SN0538 (45) 11.viii.2006 — ADL

435a *Z. oleastrella* (Mill.) — St Mary's, Isles of Scilly (1) 10 & 11.vi.2006 — M.A., W.J. & T.R. Scott; Weymouth SY6679 (9) 11.vi.2006, genitalia det. — PHS; East Lulworth SY8583 (9) 20.vi.2006 — MSP. **New to the British Isles**

436 *Pseudoswammerdamia combinella* (Hübn.) — Stamullen O146662 (H22) 5.vii.2006 — EO'D

442 *Cedestis gysseleniella* (Zell.) — Cambridge TL4358 (29) 23.vi.2006 — JRD

448 *Atemelia torquatella* (L. & Z.) — Glen Livet NJ2324 (94) 20.viii.2006 — MRY

449a *Prays citri* (Mill.) — Chessington TQ1864 (17) at light 12.x.2006, conf. JRL — JP

449b *P. peregrina* Agassiz — Orpington TQ4667 (16) 6.ix.2006 — M. Jordan; Barnet TQ2596 (20) 18.x.2006 — R. Terry; London TQ2785 (21) 15.viii.2003 — R. Softly, all per DJLA, *Nota Lepidopterologica* in press, **New to the British Isles, previousy undescribed species, presumed adventive, possibly resident**

450 *Scythropia crataegella* (Linn.) — Cambridge TL4358 (29) 23.vi.2006 — JRD

455 *Ypsolopha scabrella* (Linn.) — Barnland T145638 (H12) 26.viii.2006 — MO'D

456 *Y. horridella* (Treits.) — Walsey Hills TG0644 (27) 29.vii.2006 — KS

457 *Y. lucella* (Fabr.) — Wintersett Country Park SE3815 (63) 18.vii.2006, det. HEB — P. Smith *per* HEB

458 *Y. alpella* ([D. & S.]) — Dingestow Court SO4509 (35) 26.viii.2006 — SDSB; Haydock SJ5497 (59) 5.viii.2006 — G & D Atherton per SMP

459 *Y. sylvella* (Linn.) — Minwear Woods SN0513 (45) 12.viii.2006 — RE et al.

460 *Y. parenthesella* (Linn.) — Barnland T145638 (H12) 17.viii.2006 — MO'D

462 *Y. sequella* (Cl.) — Glasbury SO1839 (43) 3.x.2006, det. NRL — P.J. & V.F. Clarke *per* AMD; Milngavie NS560745 (99) 22.vii.2006 — JK

252 *Ochsenheimeria urella* F.v.R. — Breakheart Hill ST973467 (8) 25.viii.2006 — EGS & MHS

464 *Plutella xylostella* (Linn.) — Lullymore West N694264 (**H19**) 7.vii.2006 — MO'D; Stamullen O146662 (**H22**) 4.v.2006 — EO'D

465 *P. porrectella* (Linn.) — Glasbury SO1839 (**43**) 12.v.2006, det. NRL — P.J. & V.F. Clarke *per* AMD; Spey Bay NJ348643 (**94**) cocoon on *Hesperis matronalis* 3.vi.2006, moth bred — MRY

469 *Eidophasia messingiella* (F. v. R.) — Merthyr Tydfil SO0603 (**41**) in sample dated 13.vii-29.ix.2005, genitalia det. HEB — A. Godfrey *per* HEB

471 *Digitivalva perlepidella* (Staint.) — Oversley Wood SP1056 (**38**) 26.v.2005 — J. Rush *per* NJS

473 *Acrolepiopsis assectella* (Zell.) — Staplegrove ST2126 (**5**) 01.viii.2006 — JAMcG; Eaton Ford TL1760 (**30**) 14.viii.2006, genitalia det. DVM — A.A. Lawrence *per* DVM; Market Deeping TF1310 (**53**) 2.viii.2006, det. CS — A. Drewitt *per* CS

476 *Acrolepia autumnitella* Curt. — Wooleigh Bridge SS521170 (**4**), tenanted mines on *Solanum dulcamara* 15.ix.2006, moth bred — S.D. Beavan & RJH; Crickhowell SO217184 (**42**) tenanted mines on *Solanum dulcamara* 25.viii.2006 — JRL; Ogston Carr Wood SK3659 (**57**) vacated mines on *Solanum dulcamara* 12.vii.2006 — SHH

LYONETIIDAE

254 *Leucoptera laburnella* (Staint.) — Crathes Castle NO7396 (**91**) mines on *Laburnum anagyroides* 16.x.2006 — RMP

256 *L. spartifoliella* (Hübn.) — St. Ives TL305708 (**31**) 2.vii.2006, genitalia det. — BD; Loch Eynort, S. Uist NF7828 (**110**), vacated cocoon on *Cytisus* 28.vi.2006 — MRY, MWH & JRL

257 *L. orobi* Staint. — Pitarrig Meadow NN9659 (**89**) mines on *Lathyrus linifolius* 28.vii.2006, moths bred — KPB

COLEOPHORIDAE

492 *Coleophora flavipennella* (Dup.) — Lineover Wood SO9819 (**33**) case on *Quercus* sp. 26.iii.2006 — G.H.J. Meredith *per* RGG

494 *C. coracipennella* (Hübn.) — Llangynidr SO1520 (**42**) a few 3.vii.2006, genitalia det. — JRL

502 *C. trigeminella* Fuchs. — Monks Wood TL200797 (**31**) in RIS trap 24 - 30.v.2005, det. DVM — BD; High Batts NR, Ripon SE2976 (**65**) 1.vii.2006, genitalia det. HEB — CHF & J.C. Warwick

513 *C. potentillae* Elisha — Hatch Beauchamp ST3020 (**5**) cases on *Agrimonia eupatoria*, *Sanguisorba minor* and *Rubus* sp. 13.ix.2006 — JAMcG

516 *C. trifolii* (Curt.) — Seaton SX3055 (**2**) cases on *Melilotus altissimus* 10.viii.2006 — RJH

518 *C. mayrella* (Hübn.) — Inchmarlo NO6796 (**91**) 12.vii.2006 genitalia det. C.W.N.Holmes — C.W.N. Holmes per RMP

519 *C. deauratella* L. & Z. — Stanbury, Morwenstow SS2013 (**2**) 13.vii.2006 — GAC

521 *C. conyzae* Zell. — Great Glemham TM3360 (**25**) cases on *Pulicaria* 21.vi.2006 — AWP

530 *C. lixella* Zell. — Barry Buddon NO5132 (**90**) two cases on *Dactylis* near *Thymus* 15.v.2006 — KPB

532 *C. albidella* ([D. & S.]) — Ningwood Common SZ394898 (**10**) case on *Salix* sp. 5.viii.2006, det. RDE — T.J. Norriss *per* SAK-J

535 *C. ibipennella* Zell. — Hannaborough Moor, Hatherleigh SX525026 (4) cases on *Quercus* sp. 22.vii.2006 — R. Wolton *per* RJH; Llangorse SO1327 (42) 4.vii.2006, genitalia det. — NRL

541 *C. pyrrhulipennella* Zell. — Port Soderick SC3673 (71) 17.vi.2006, genitalia det. — JAMcG

544 *C. albicosta* (Haw.) — Stamullen O146662 (H22) 6.vi.2006 — EO'D

547 *C. discordella* Zell. — Caehopkin SN8212 (42) 1.vii.2006 — NRL

553 *C. striatipennella* Nyl. — Broadholme SK9874 (53) 13.vi.2006, genitalia det. CS — M. Gray per CS; Barry Buddon NO5132 (90) cases on *Cerastium fontanum* 18.viii.2006 — KPB

556 *C. trochilella* (Dup.) — Bwlchciliau SN9555 (42) 3.vii.2006, genitalia det. — NRL

561 *C. therinella* Tengst. — Hindolveston TG045297 (27) 1.vi.2003, genitalia det. — JC

565 *C. saxicolella* (Dup.) — saltmarsh near Instow Barton SS478324 (4) 18.viii.2006, genitalia det. RJH — S.D. Beavan & RJH; Tarlair NJ7264 (94) 10.vii.2006, genitalia det. MRY — R. Leverton & MRY

566 *C. sternipennella* (Zett.) — Sherborne St John (12) 27.vii.2006, genitalia det. JC — ; Royal Leamington Spa SP335643 (38) 5.viii.2006, genitalia det. — M. Kennard *per* NJS; Harlech SH574301 (48) 19.viii.2006, genitalia det. ANG — H. Bantock *per* ANG

567 *C. adspersella* Ben. — Orford Ness NNR TM4349 (25) 17.vii.2006, genitalia det. B. Goodey — M. Marsh *per* JBH

568 *C. versurella* Zell. — Staplegrove ST2126 (5) 8.vii.2005, genitalia det. — JAMcG; Pembrey Forest SN387035 (44) 26.viii.2006, genitalia det. — JSB; Broadholme SK9874 (53) 13.vi.2006, genitalia det. CS — M. Gray per CS

572 *C. vestianella* (Linn.) — Greenford TQ160850 (21) 6.vii.2006, genitalia det. RT — A. Culshaw *per* RT

581 *C. taeniipennella* H.-S. — Keiss ND352609 (109) 3.vii.2006, genitalia det. — MRH

582 *C. glaucicolella* Wood — High Batts NR, Ripon SE2976 (65) 1.vii.2006, genitalia det. HEB — CHF & J.C. Warwick; South Glendale, S. Uist NF7914 (110) 29.vi.2006, genitalia det. JRL — MRY, MWH & JRL

583 *C. tamesis* Waters — Roughton, Southfield TF242648 (54) 11.vii.2005, genitalia det. CS — K.D. Robertson *per* CS

586 *C. adjunctella* Hodgk. — Axmouth Saltings SY257912 (3) cases on *Juncus gerardii* 13.viii.2006 — BPH

587 *C. caespititiella* Zell. — Johnstown SN398198 (44) 6.vi.2006, genitalia det. — JSB; Templehall NO317279 (89) 19.vi.2006, genitalia det. — JRL

588 *C. salicorniae* Hein. & Wocke — Netherton Point SX891721 (3) cases on *Salicornia* 1.x.2005 — BPH; saltmarsh near Instow Barton SS478324 (4) 18.viii.2006 — S.D. Beavan & RJH; Broadholme SK9874 (53) 28.vii.2006, genitalia det. CS — M. Gray *per* CS; Dolphinholme SD5252 (60) 22.vii.2006 genitalia det. — N.A.J. Rogers *per* SMP and Leighton Moss SD4774 (60) 22.vii.2006 genitalia det. — SMP

589 *C. clypeiferella* Hofm. — Hilton TL294665 (31) 19.vii.2006, genitalia det. — BD; Roughton TF2464 (54) 29.vi.2006, genitalia det. CS — K. Robertson *per* CS

ELACHISTIDAE

590 *Perittia obscurepunctella* (Staint.) — Rand Wood TF082779 (54) 10.iv.2005 — CS

592 *Stephensia brunnichella* (Linn.) — Elanor Wood, Linwood TF115855 (54) 15.v.2005 — CS

593 *Elachista regificella* Sirc. — Yelling TL267617 (31) 16.vi.2006, genitalia det. — BD; Coed Fenni-fach SO0128 and 0028 (42) tenanted mines on *Luzula sylvatica* 26.iv.2006, moths bred and genitalia det. JRL — NRL & JRL

593b *E. tengstromi* Kaila *et al.* — Coed Fenni-fach SO0128 (42) tenanted mines on *Luzula pilosa* 26.iv.2006, moths bred and genitalia det. JRL — NRL & JRL

597 *E. atricomella* Staint. — Barnland T145638 (H12) 10.vi.2006 — MO'D

602 *E. apicipunctella* Staint. — Spurn TA4115 (61) 8.v.2006, det. HEB — B.R. Spence *per* HEB

605 *E. pomerana* Frey — Minsmere RSPB TM477661 (25) 18.vii.2006, genitalia det. JRL — JBH & JRL

608 *E. rufocinerea* (Haw.) — Broadholme SK8974 (53) 13.v.2006 — M. Gray *per* CS; Templehall NO317279 (89) 19.vi.2006 — JRL

613 *E. subocellea* (Steph.) — High Batts NR, Ripon SE2976 (65) 1.vii.2006, det. HEB — CHF & J.C. Warwick, first confirmed VC record.

617 *E. obliquella* (Staint.) (= *megerlella* Hübn.) — Monks Wood TL200797 (31) in RIS trap 24 – 30.v.2005, det. DVM — BD

627 *Biselachista scirpi* (Staint.) — Gibraltar Point TF567580 (54) 5.viii.2005 — CS

632 *Cosmiotes consortella* (Staint.) — Royal Leamington Spa SP335643 (38) 23.ix.2006, genitalia det. — M. Kennard *per* NJS

OECOPHORIDAE

634 *Schiffermuellerina grandis* (Desv.) — Needwood Forest SK1621 (39) 7.vi.2006, first county record since 19th C. — M.G. Bloxham *per* DWE

635 *Denisia subaquilea* (Staint.) — Blaenavon SO2308 (35) 26.vi.2005 — JAMcG

638a *D. albimaculea* (Haw.) — Hall Green SP1181 (37) 9.vi.2006 — A. Prior *per* ANBS

640 *Batia lunaris* (Haw.) — Torpoint SX4354 (2) 3.vii.2006 — LACT

0641 *B. lambdella* (Don.) — Frensham Common SU8440 (17) 20.vi.2004 — JP & GAC; Silwood Park SU9468 (22) 1.vii.2003 — G. Broad *per* MCH; Pembrey Burrows SS4299 (44) 15.vii.2006 — JSB & L. Walker

642a *Metalampra italica* Baldizzone — Studham TL0217 (30) 27.vi.2006, conf. RJH — C.R.B. Baker *per* DVM

648 *Endrosis sarcitrella* (Linn.) — Gormonston Beach O182664 (H22) 23.vi.2006 — EO'D

649 *Esperia sulphurella* (Fabr.) — Quoyberstane HY462120 (111) 22.vii.2006 — SVG

651 *Oecophora bractella* (Linn.) — Wyre Forest SO843612 (40) 20.vi.2005 — DG

658 *Carcina quercana* (Fabr.) — Stamullen O146662 (H22) 15.vii.2006 — EO'D

660 *Pseudatemelia josephinae* (Toll) — Monks Wood TL200797 (31) in RIS trap 7 – 13.vi.2005, det. DVM — BD

667 *Semioscopis steinkellneriana* ([D. & S.]) — Felindre Farchog, SN1038 (45) 7.v.2006 — RE

668 *Luquetia lobella* ([D. & S.]) — Halton Holegate TF415645 (54) 23.vi.2005, genitalia det. — CS; Shenton Cutting SP1999 (55) 9.vi.2006 — G. & M.A. Finch *per* MPS

670 *Depressaria daucella* ([D. & S.]) — Marton SK8482 (54) 29.viii.2006, genitalia det. CS — B. Hedley *per* CS; Templehall NO3127 (89) larvae on *Oenanthe crocata* 19.vi.2006 — JRL

671 *D. ultimella* Staint. — Old Weston TL103776 (31) 26.v.2006, genitalia det. BD — K. Royles *per* BD; Nantgwyn SN365238 (44) 2.ix.2006, genitalia det. — JSB

674 *Depressaria badiella* (Hübn.) — near Wendover SP8506 (**24**) 26.viii.2006, genitalia det. DVM — MVA

678 *D. sordidatella* Tengst. — Pembrey Burrows SS4299 (**44**) 26.vii.2006, genitalia det. — JSB

691 *Agonopterix purpurea* (Haw.) — Harlech SH574301 (**48**) 13.iv.2006, det. ANG — H. Bantock *per* ANG

696 *A. propinquella* (Treits.) — Stamullen O146662 (**H22**) 5.ix.2006 — EO'D

704 *A. scopariella* (Hein.) — Dunster SS9842 (**5**) larva on *Cytisus scoparius* 13.viii.2006, moth bred — JAMcG; Kylerhea, Skye NG7822 (**104**) larvae on *Cytisus scoparius* 5.vii.2006, moths bred — RJH

706 *A. nervosa* (Haw.) — Stamullen O146662 (**H22**) 15.vii.2006 — EO'D

711 *A. curvipunctosa* (Haw.) — Totternhoe Knolls SP9722 (**30**) 14.v.2006 — J.E. Childs & G. Dennis *per* DVM

712 *A. astrantiae* (Hein.) — Stamullen 0146662 (**H22**) 29.vii.2006, conf. JRL from photograph — EO'D

713 *A. angelicella* (Hubn.) — near Cornhill NJ5755 (**94**) 4.viii.2006 — R. Leverton *per* MRY

714 *A. yeatiana* (Fabr.) — Bwlch SO1522 (**42**) 22.iv.2006 — C. Becker *per* NRL

ETHMIIDAE

718 *Ethmia dodecea* (Haw.) — Kate's Bridge TF1014 (**53**) 24.vi.2006 — RWG

GELECHIIDAE

723 *Metzneria littorella* (Doug.) — Hastings TQ8309 (**14**) 23.vi.2006, genitalia det. — GAC

724 *M. lappella* (Linn.) — west of Dowlaw NT8470 (**81**) larvae or pupae in seedheads of *Arctium minus* 14.iv.2006, moths bred — KPB; Yellowcraigs NT5185 (**82**) larvae in seedheads of *Arctium minus* 27.xii.2006, moths bred

729 *Isophrictis striatella* ([D. & S.]) — Higher Poynton SJ9483 (**58**) 29.vii.2006 — SHH; Flixton SJ7493 (**59**) imago resting on flower-head of *Tanacetum vulgare* 25.vii.2006 — K. McCabe *per* SMP

730 *Apodia bifractella* (Dup.) — Locks Park Farm, Hatherleigh SS514023 (**4**) — R. Wolton *per* RJH

731a *Eulamprotes immaculatella* (Dougl.) — Horsea Island, Portsmouth SU6304 (**11**) at mv light 21.vii.2006, genitalia det. — RJD

732 *E. unicolorella* (Dup.) — Dingestow Court SO4509 (**35**) 16.vi.2006 — SDSB

733 *E. wilkella* (Linn.) — Old Weston TL099774 (**31**) 17.vii.2006, genitalia det. DVM & BD — K. Royles *per* BD

728 *Monochroa cytisella* (Curt.) — Whixall Moss SJ4936 (**40**) 17.vii.2006 — SPC; Minwear Woods SN059138 (**45**) 1.vii.2006 — North Pembrokeshire Moth Group *per* ADL

735 *M. tenebrella* (Hübn.) — Market Rasen TF0988 (**54**) 7.vii.2006, genitalia det. — CS

737 *M. palustrella* (Dougl.) — Bullen Hill ST894579 (**8**) 15.vii.2006 — EGS & MHS; Leagh South M3210 (**H9**) 5.viii.2006 — SPC, **New to Ireland**

738 *M. tetragonella* (Staint.) — Mochras SH560260 (**48**) 26.vi.2006, genitalia det. — ANG & JEG

740 *M. hornigi* (Staud.) — Ipswich TM2043 (**25**) 2.vii.2006, genitalia det. JC — N. Sherman *per* AWP; Old Weston TL099774 (**31**) 4.vii.2006, genitalia det. DVM & BD — K. Royles *per* BD; Kate's Bridge TF1014 (**53**) 24.vi.2006, genitalia det. — RWG

742 *M. lutulentella* (Zell.) — Portland Bird Observatory SY6868 (9) 10.vii.2004, genitalia det. PHS, first VC record since *c.*1940 — M. Cade *per* PHS; Thorp Perrow Arboretum SE2585 (**65**) 16.vii.2006, det HEB — CHF, J.C. Warwick & D.M. Bowes; Lullymore West N694264 (**H19**) 7.vii.2006, genitalia det. K.G.M. Bond — MO'D

746 *Chrysoesthia drurella* (Fabr.) — Sleighford SJ883250 (**39**) tenanted mines 4.ix.2006 — C. Darbyshire *per* DWE

748 *Ptocheuusa paupella* (Zell.) — Porth Neigwl SH2327 (**49**) larvae in flowerheads of *Pulicaria dysenterica* 21.vii.2006, moths bred — IFS

779 *Bryotropha affinis* (Haw.) — Higher Nichols Nymett SS691021 (**4**) 30.vii.2006 — S.D. Beavan *per* RJH; Tramore S578019 (**H6**) 15.vii.2005, det. K.G.M. Bond — TB

780 *B. similis* (Staint.) — Royal Leamington Spa SP335643 (**38**) 21.viii.2006, genitalia det. — M. Kennard *per* NJS; near Cornhill NJ5755 (**94**) 28.vi.2006 — R. Leverton *per* MRY

783 *B. boreella* (Dougl.) — near Cornhill NJ5755 (**94**) 17.vii.2006 — R. Leverton *per* MRY

786 *B. desertella* (Dougl.) — Pembrey Burrows SS4299 (**44**) 23.vii.2006, genitalia det. — JSB

788 *B. politella* (Staint.) — Charnwood Lodge SK4615 (**55**) 9.vi.2006, det MPS — MPS, A.P. Russell & A.J. Mackay

789 *B. domestica* (Haw,) — Luffness Links NT4781 (**82**) larvae in *Tortula muralis* 11.iii.2006, moths bred — KPB

755 *Stenolechia gemmella* (Linn.) — Coombe Meadow SS498022 (**4**) 5.viii.2005 — R. Wolton *per* RJH

757 *Recurvaria nanella* ([D. & S.]) — Legar SO2117 (**42**) 5.viii.2006, genitalia det. — J.M. & P.M. Rees *per* NRL

758 *R. leucatella* (Clerck) — Hale SJ4683 (**59**) 16.vii.2006 det. SMP — C Cockbain *per* SMP

762 *Athrips mouffetella* (Linn.) — Locks Park Farm, Hatherleigh SS514023 (**4**) 14.vii.2006 — R. Wolton *per* RJH

770 *Carpatolechia proximella* (Hübn.) — Lullymore West N694264 (**H19**) 7.vii.2006 — MO'D

790 *Chionodes fumatella* (Dougl.) — near Cornhill NJ5755 (**94**) 17.vii.2006 — R. Leverton *per* MRY

791 *C. distinctella* (Zell.) — Whisby NR, Sandhills SK913674 (**53**) 12.vii.2005, genitalia det. CS — P. Porter *per* CS

859 *Psoricoptera gibbosella* (Zell.) — Marymead SS517029 (**4**) 31.vii.2004 — R. Wolton *per* RJH

796 *Aroga velocella* (Zell.) — Chapel Common, Rake SU8228 (**13**) 28.viii.2006, genitalia det. — GAC

801 *Gelechia scotinella* (H. - S.) — Chessington TQ1864 (**17**) at light 2.vii.2006, genitalia det. GAC — JP

801a *G. senticetella* (Staud.) — Hall Green SP1181 (**37**) 27.vii.2006 — A. Prior *per* ANBS

806 *G. nigra* (Haw.) — Leckhampton SO9519 (**33**) 17.vii.2006, genitalia det. D.J. Gibbs — G.H.J Meredith *per* RGG

810 *Scrobipalpa suaedella* (Rich.) — Horsea Island, Portsmouth SU6304 (**11**) at mv light 21.vii.2006, genitalia det. — RJD, first confirmed county record, the record by W. Fassnidge in Goater, 1974, *The Butterflies and Moths of Hampshire and the Isle of Wight* being a misidentification of *S. nitentella* (Fuchs) — JRL

811 *S. samadensis* (Pfaff.) — Tarlair NJ7264 (94) 1.vii.2006 — R. Leverton *per* MRY; Rosbeg G6797 (**H35**) 30.viii.2005, genitalia det. — JBH

814 *S. ocellatella* (Boyd) — Pembrey Burrows SS4299 (44) 10.ix.2006, genitalia det. — JSB

815 *S. nitentella* (Fuchs) — saltmarsh near Instow Barton SS478324 (4) larvae on *Atriplex* sp. 18.viii.2006, moths bred — S.D. Beavan & RJH; Keiss ND352609 (109) 3.vii.2006, genitalia det. — MRH

816 *S. obsoletella* (F. v. R.) — Kate's Bridge TF1014 (53) 17.vii.2006, genitalia det. — RWG

825 *Phthorimaea operculella* (Zell.) — Caenby TF015898 (54) 6.x.2005, genitalia det. — CS

828 *Caryocolum viscariella* (Staint.) — Linkim Shore NT9166 (81) larvae in shoots of *Lychnis dioica* 13.v.2006, moths bred — KPB

832 *C. blandella* (Dougl.) — Taynish NNR NR7283 (101) 4.viii.2006 — KPB

841 *Sophronia semicostella* (Hübn.) — Totland SZ328860 (10) 24.vi.2006, det. KPB — SAK-J; High Batts NR, Ripon SE2976 (65) 1.vii.2006, det HEB — CHF & J.C. Warwick

844 *Syncopacma larseniella* (Gozm.) — Minsmere RSPB TM4767 (25) 19.vi.2006, genitalia det. JBH — R. M. Harvey & JBH

850 *S. polychromella* (Rebel) — Puddletown SY7695 (9) 16.vi.2006 — H. Wood Homer *per* PHS

856 *Anarsia spartiella* (Schr.) — Willingham Forest TF131893 (54) 9.vii.2005, genitalia det. — CS; Lullymore West N694264 (H19) 7.vii.2006 — MO'D

857 *A. lineatella* Zell. — Portsmouth SU6700 (11) at mv light 6.vii.2006 — IRT

851 *Dichomeris alacella* (Zell.) — Staplegrove ST2126 (5) 14.vii.2005, genitalia det. — JAMcG; Wyndcliff ST59 (35) 18.vii.2006 — JSB, new to Wales

809 *Pexicopia malvella* (Hübn.) — Hertford TL327143 (20) 26.vi.2006, first county record for over 100 years — A. Wood *per* CWP; Cockayne Hatley TL2549 (30) in RIS trap 16 – 23.vii.2006, genitalia det. DVM, first county record since 1936 — DVM

AUTOSTICHIDAE

870 *Oegoconia quadripuncta* (Haw.) — Market Deeping TF1310 (53) 3.vii.2005 — A. Drewitt *per* CS; Louth TF339863 (54) 17.vii.2005, genitalia det. CS — R. Labbett *per* CS; Nottingham SK592369 (56) 20.vii.2004, genitalia det. MSP — R. Fox *per* MSP; Tadcaster SE4742 (64) thirty-four 7–29.vii.2006, genitalia det. HEB — D. Baker *per* HEB

BLASTOBASIDAE

874 *Blastobasis lacticolella* Rebel (= *decolorella* Woll.) — Templehall NO317279 (89) 19.vi.2006 — JRL; Milngavie NS560745 (99) 1.vii.2006 — JK; Portree, Skye NG4843 (104) one found dead in shop window 7.vii.2006 — RJH; Stamullen O146662 (H22) 4.viii.2006 — EO'D

875b *Hypatopa binotella* (Thunb.) – Micheldever Spoil-heaps NR SU5244 (12) 18.vii.2006, det. JRL — BE, *BENHS Annual Exhibition 2007*, **New to the British Isles**

STATHMOPODIDAE

877 *Stathmopoda pedella* (Linn.) — Buckingham Palace Garden TQ2879 (21) 4.vii.2006, first county record since 1867 — THF; Royal Leamington Spa SP335643 (38) 23.iii.2005 — M. Kennard *per* NJS

877b *S. auriferella* Walker — Plymouth (3) larva in calyx of pomegranate (*Punica granatum*), origin Israel, 30.x.2005, moth bred — RJH, **Adventive species new to the British Isles**

BATRACHEDRIDAE

878 *Batrachedra praeangusta* (Haw.) — Hempsted SO8218 (33) 28.vi.2006 — G.R. Avery *per* RGG

879 *B. pinicolella* (Zell.) — Doncaster SK628985 (63) 7.vii.2006 — RIH

MOMPHIDAE

880 *Mompha langiella* (Hübn.) — Stansted Forest SU7510 (13) tenanted mine on *Circaea lutetiana* 12.ix.2006 — IRT & JRL; Thetford Forest TL7981 (26) vacated mines and pupae on *Epilobium hirsutum* 13.vii.2006, moths bred — RMP

886 *M. ochraceella* (Curt.) — Higher Nichols Nymett SS691021 (4) 3.vii.2006 — S.D. Beavan *per* RJH

888 *M. propinquella* (Staint.) — Barnland T145638 (H12) 19.viii.2006 — MO'D

889 *M. divisella* H.-S. — Harlech SH574301 (48) 15.iv.2006, genitalia det. ANG — H. Bantock *per* ANG

891 *M. sturnipennella* (Treits.) — Pitsford Water NR SP7668 (32) v.2006, genitalia det. DVM. — P. Horsnail *per* DVM; Cheltenham SO9424 (33) gall in *Chamerion angustifolium* 27.vii.2006 — R. Homan *per* RGG

892 *M. subbistrigella* (Haw.) — Higher Nichols Nymett SS691021 (4) 11.v.2006 — S.D. Beavan *per* RJH; Tynemouth NZ364705 (67) 14.viii.2006 — TJT; Stamullen O146662 (H22) 30.ix.2006 — EO'D

COSMOPTERIGIDAE

896 *Cosmopterix orichalcea* Staint. — Mochras SH560261 (48) 26.vi.2006 — ANG & JEG

896a *C. scribaiella* Zell. — Chippenham Fen TL6469 (29) 24.vi.2006 — JRD & I. Barton

896b *C. pulchrimella* Chambers — Shanklin Chine SZ584810 and Steephill Cove SZ551769 (10) tenanted mines on *Parietaria judaica* 22 & 27.xii.2006 — DTB

903 *Chrysoclista linneella* (Cl.) — Wyndcliff ST59 (35) 18.vii.2006 — JSB

908 *Sorhagenia rhamniella* (Zell.) — Coolortha R350961 (H9) 5.viii.2006, genitalia det. MSP — SPC, **New to Ireland**

SCYTHRIDIDAE

911 *Scythris grandipennis* (Haw.) — Dunwich Heath TM4768 (25) 25.vi.2006, det. JBH — C. Moore & D. Brougham *per* JBH; Scotton Common NR SK8698 (54) 15.vi.2006, genitalia det. — CS

918 *S. limbella* (Fabr.) — Stoke Prior SO950673 (37) 14.vii.2004, first county record since 19th C. — J. Rush *per* ANBS

919 *S. cicadella* (Zell.) — Coopers Hill TL0237 (30) 25.vi.2006, genitalia det. — DVM

920 *S. potentillella* (Zell.) — Croxley Common Moor TQ0894 (20) ix.2005 — D. Murray *Ent. Rec.* **119**: 71

920a *S. inspersella* (Hübn.) — Histon TL4264 (29) larvae on *Chamerion angustifolium* 16.vii.2006, moths bred — JRD

TORTRICIDAE

923 *Phtheochroa sodaliana* (Haw.) — Luffenham Heath (55) 1.vii.2006 — MPS, R. Follows & A.J. Mackay

926 *Phalonidia manniana* (F.v.R.) — Stony Stratford SP7940 (24) 3.vii.2006, det DVM — M Killeby *per* MVA; Doxey Marshes SJ91312405 (39) 24.vi.2006 — M. Dale *per* DWE; Whisby Nature Park SK9166 (53) 10.vi.2006 — CS

933 *P. gilvicomana* (Zell.) — Bryanston ST8706 (9) very many larvae on *Mycelis muralis* 16.vii.2006 — PHS

937 *Agapeta hamana* (Linn.) — Lullymore West N694264 (**H19**) 7.vii.2006 — MO'D

942 *Aethes piercei* Ob. — Tring SP9111 (20) 2006, genitalia det. CWP, first county record for over 100 years — I. Burrus *per* CWP

944 *A. williana* (Brahm) — Bishops Hill SP392584 (38) 15.v.2005 — M. Kennard & R. Ruban *per* NJS

945 *A. cnicana* (Westw.) — Stamullen O146662 (**H22**) 24.vi.2006 — EO'D

946 *A. rubigana* (Treits.) — Barnland T145638 (**H12**) 18.vii.2006 — MO'D; Stamullen O146662 (**H22**) 9.vii.2005 — EO'D

955 *Eupoecilia ambiguella* (Hübn.) — Gibraltar Point TF55 (54) 27.v.2005 — Leicestershire Moth Group *per* CS

959 *Cochylidia rupicola* (Curt.) — Orchard Portman ST2520 (5) 11.vii.2006 — JAMcG

963 *Cochylis flaviciliana* (Westw.) — Barnland T145638 (**H12**) 5.viii.2006, genitalia det. K.G.M. Bond — MO'D

964a *C. molliculana* Zell. — Bullen Hill ST894579 (8) 31.viii.2006 — EGS & MHS; Parkhurst SZ472918 (10) 5.viii.2006, det. T.J. Norriss — SAK-J & T.J. Norriss; Edolphs Copse TQ2342 (17) 10.vi.2006 — JP; Bishops Stortford TL 4822 (20) 23.viii.2006, genitalia det. R. Terry — J. Fish & J. Reeves *per* CWP

966 *C. atricapitana* (Steph.) — Stamullen O146662 (**H22**) 26.v.2006 — EO'D

968 *C. nana* (Haw.) — Barnland T145638 (**H12**) 5.vi.2006 — MO'D

972 *Pandemis heparana* ([D. & S.]) — Stamullen O146662 (**H22**) 22.vi.2005 — EO'D

977 *Archips podana* (Scop.) — Lullymore West N694264 (**H19**) 7.vii.2006 — MO'D

982 *Choristoneura diversana* (Hübn.) — North Farm, nr Shenton, SK388989 (55) 27.vi.2006 — RWG

987 *Ptycholomoides aeriferanus* (H.-S.) — Royal Leamington Spa SP335643 (38) 12.vi.2006. — M. Kennard *per* NJS

991 *Clepsis senecionana* (Hübn.) — Abertillery SO2207 (35) pupa on *Vaccinium myrtillus* 27.iv.2006, moth bred — SPC

993a *C. coriacana* (Rebel) — Ampthill TL038380 (30) from RIS trap between 13.viii and 9.ix.2006, genitalia det J. Razowski and DVM — D. Smith *per* DVM, *Ent. Rec.* **119**: 235-237, **New to the British Isles**

998 *Epiphyas postvittana* (Walk.) — Fallin NS836919 (86) vi.2006 — R. Dawson per MRY; Aberdeen NJ9304 (92) in a heated greenhouse 19.x.2005 — RMP; Stamullen O146662 (**H22**) 25.v.2006 — EO'D

1001 *Lozotaeniodes formosanus* (Geyer) — Glasbury SO1839 (43) 20.vii.2006, det. NRL — P.J. & V.F. Clarke *per* AMD

1006 *Epagoge grotiana* (Fabr.) — Barnland T145638 (**H12**) 5.vii.2006 — MO'D

1015 *Eulia ministrana* (Linn.) — Penpedwast SN1238 (45) 10.vi.2006 — RE et al.

1016 *Cnephasia longana* (Haw.) — Luffness Links NT4781 (82) pupae in seedheads of *Pilosella officinarum* 9.vii.2006, moths bred — KPB, **new to Scotland**

1019 *C. conspersana* Dougl. — Acarsaid, Eriskay NF7909 (110) larvae and pupae in flowers of *Hypochoeris radicata* and *Antennaria dioica* 30.vi.2006, moths bred — MRY, MWH & JRL

1023 *C. genitalana* P. & M. — Bushy Park TQ1469 (21) 11.vii.2005, genitalia det. — THF; Dunchurch SP48256936 (38) 29.vii.2006, genitalia det. — M. Kennard *per* NJS

1024 *C. incertana* (Treits.) — Barry Buddon NO5430 (90) larvae in shoots of *Ononis repens* 15.v.2006, moths bred — KPB Barnland T145638 (H12) 24.vi.2006, genitalia det. K.G.M. Bond — MO'D

1034 *Spatalistis bifasciana* (Hübn.) — Newpark Waste SX5961 (3) one larva in a case made from a fragment of a leaf of *Quercus robur* 1.iv.2006, moth bred — RJH

1036 *Acleris forsskaleana* (Linn.) — Glasbury SO1839 (43) 15.vii.2006, det. NRL — P.J. & V.F. Clarke *per* AMD; Gormonston College O164664 (H22) 21.vii.2006 — EO'D

1042 *A. rhombana* ([D. & S.]) — Tomintoul NJ165192 (94) 2.ix.2006 — T. Boardman *per* MRY; Barnland T145638 (H12) 30.ix.2006 — MO'D; Stamullen O146662 (H22) 23.ix.2006 — EO'D

1043 *A. aspersana* (Hübn.) — Glasbury SO1839 (43) 16.viii.2006, det. NRL — P.J. & V.F. Clarke *per* AMD

1045 *A. notana* (Don.) — Barnland T145638 (H12) 20.x.2006, genitalia det. K.G.M. Bond — MO'D

1051 *A. logiana* (Cl.) — Buckland TQ2250 (17) 18.iii.2005, genitalia det. GAC — C. Hart *per* JP; Bishops Stortford TL487221 (20) 29.i.2005 J. Fish & J. Reeves *per* RT; Wicken Fen TL5670 (29) 5.vii.2006, genitalia det. JBH — JBH & S. J. Read

1052 *A. umbrana* (Hübn.) — Downderry SX316540 (2) 18.i.2006, genitalia det. RJH, second Cornish record — S.C. Madge *per* RJH

1054 *A. cristana* ([D. & S.]) — Spurn TA4115 (61) 6.viii.2006, conf. HEB — B.R. Spence *per* HEB

1056 *A. lipsiana* ([D. & S.]) —Tresta HU358516 (112) 22.ix.2006, genitalia det. JC — T. Rogers *per* JC, *Ent. Rec.* **119**: 45

1062a *A. effractana* (Hübn.) — Malham Tarn SD8967 (64) 24.viii.2004, genitalia det. CHF — MAB

1013 *Olindia schumacherana* (Fabr.) — Pengelli Forest NNR SN1239 (45) 18.vii.2006 — ADL

1064 *Celypha rosaceana* (Schläg.) — Horticultural Research Station, St Martin, Guernsey WV320762 (113) in RIS trap 20.viii.2006 — R.A. Austin *per* PDMC

1065 *C. rufana* (Scop.) — Motcombe ST8526 (9) late vi.06, genitalia det. PHS — P.N. Butter *per* PHS; Appleton Thorn SJ6383 (58) 4.vi.2006, genitalia det. A.M. Davis — .S. Bayley *per* SHH

1067 *C. cespitana* (Hübn.) — Bushy Park TQ1469 (21) 11.vii.2005, genitalia det.—THF

1068 *C. rivulana* (Scop.) — near Cornhill NJ5755 (94) 21.vii.2006 — R. Leverton *per* MRY

1083 *Hedya nubiferana* (Haw.) — Templehall NO317279 (89) 19.vi.2006 — JRL; Stamullen O146662 (H22) 11.vii.2005 — EO'D

1086 *H. salicella* (Linn.) — Maenporth (1) 4.vii.2006 — G. Davis, *Atropos* **30**: 54; Torpoint SX4354 (2) 4.vii.2006 — LACT

1091 *Apotomis lineana* ([D. & S.]) — Eye TM1473 (25) 22.vii.2006 — P. Kitchener *per* AWP

1092 *A. turbidana* (Hübn.) — Pickle Wood SN0514 (45) 17.vi.2006 — RE et al.

1101 *Endothenia ustulana* (Haw.) — College Wood TF124754 (54) 19.vi.2005, genitalia det. — CS

1102 *E. nigricostana* (Haw.) — Heronry Wood, Fishleigh SS548063 (4) 10.vi.2006 — S.D. Beavan & RJH; Woodhouse SE784088 (54) 30.v.2005, genitalia det. — CS

1104 *E. quadrimaculana* (Haw.) — Glasbury SO1839 (43) 31.vii.2006, det. NRL — P.J. & V.F. Clarke *per* AMD; near Aberchirder NJ631524 (94) 17.vii.2006 — R. Smith *per* MRY

1106 *Lobesia reliquana* (Hübn.) — Torrington SS495188 (4) 12.v.2006 — S. Hatch *per* RJH

1108 *L. abscisana* (Doubld.) — Higher Nichols Nymett SS691021 (4) 22.vii.2006 — S.D. Beavan *per* RJH

1110 *Bactra furfurana* (Haw.) — Bushy Park TQ1569 (21) 4.viii.2006, genitalia det. — THF; Pollachar, S. Uist NF7414 (110) 27.vi.2006 — MRY, MWH & JRL; Ballinoulart Dunes T207433 (**H12**) 1.vii.2006 — MO'D

1111a *B. lacteana* Caradja — Dolphinholme SD5252 (60) 1.vii.2006 genitalia det. JRL — N.A.J. Rogers *per* SMP

1112 *B. robustana* (Christ.) — Instow Barton Marsh (4) 18.viii.2006 — S.D. Beavan & RJH

1114 *Eudemis porphyrana* (Hübn.) — Grafton Wood SO973560 (37) 27.vi.2006 — P. Clements *per* ANBS

1117 *Ancylis unguicella* (Linn.) — Cox Green Quarries SD7114 (59) 29.vii.2006, det. SMP — D Lumb *per* SMP

1119a *A. diminutana* (Haw.) — Thetford TL8384 (26) 11.vi.2006 — SPC

1121 *A. upupana* (Treits.) — Havant Thicket SU7110 (11) larva in podded leaf of *Salix* x *caprea* 8.xi.2006, moth bred, previously unrecorded foodplant — JRL & BE; Bawtry Forest SK 6294 (63) 3.vi.2006 — HEB

1124 *A. tineana* (Hübn.) — Whixall Moss SJ4936 (40) larva in tough brown silken tube on small *Betula* 29.iii.2006, moth bred and genitalia checked — MSP, **New to England**

1128 *A. myrtillana* (Treits.) — Hardy Monument SY6187 (9) 7.vi.06, first VC record since *c.*1930 — PHS

1133 *Epinotia bilunana* (Haw.) — Hillsford Bridge, Watersmeet SS741478 (4) 10.vi.2006 — S. Hatch *per* RJH; Llangorse SO1327 (42) 4.vii.2006 — D. Mitchell *per* NRL

1135 *E. demarniana* (F.v.R.) — Cannock Chase SK00552051 (39) 1.vii.2006 — D.C. Gardner *per* DWE

1143 *E. fraternana* (Haw.) — Eaton Ford TL1760 (30) 6.vi.2006, genitalia det. BD — A.A. Lawrence *per* DVM

1147 *Epinotia cruciana* (Linn.) — Pont-ar-dulas SN9453 (42) 19.vii.2006 — H.G. Parker *per* NRL

1151 *E. trigonella* (Linn.) — Wiston Wood SN0216 (45) 5.viii.2006 — RE *et al.*

1153 *E. sordidana* (Hübn.) — Watermead North Country Park SK6011 (55) 23.ix.2006, genitalia det. K. Tailby — K. Tailby, A.P. Russell, G. & M.A. Finch *per* MPS

1154 *E. caprana* (Fabr.) — Fir & Pond Wood NR TL276011 (21) 1.ix.20006 — RT

1155 *E. brunnichana* (Linn.) — Hannaborough Moor, Hatherleigh SS525026 (4) 23.vii.2006 — R. Wolton *per* RJH

1157 *Crocidosema plebejana* Zell. — Shotesham TM245995 (27) 28.x.2006 — AM; Fulbourn TL5153 (29) 23.ix.2006 — JRD; Cheltenham SO9424 (33) 31.x.2006 — R.Homan *per* RGG; Hall Green SP1181 25.vii.2006 — A. Prior *per* ANBS; Flixton SJ7493 (59) 15.xi.2006 — K. McCabe *per* SMP; Cronykeery T290984 (**H20**) 15.vi.2006 — AT

1162 *R. myrtillana* (H. & W.) — Hardy Monument SY6187 (9) 1.vi.2006, first VC record since *c.*1930 — PHS

1174 *Epiblema cynosbatella* (Linn.) — Stamullen O146662 (**H22**) 3.vi.2006 — EO'D

1175 *E. uddmanniana* (Linn.) — Acarsaid, Eriskay NF7909 (**110**) larvae on *Rubus fruticosus* 30.vi.2006 — MRY, MWH & JRL; Lullymore West N694264 (**H19**) 7.vii.2006 — MO'D

1176 *E. trimaculana* (Haw.) — Foxglove Covert NR, Catterick SE1697 (65) 23.vi.2006, det. HEB — CHF & J.C. Warwick

1178 *E. roborana* ([D. & S.]) — Stamullen O146662 (**H22**) 26.vii.2005 — EO'D

1183 *E. foenella* (Linn.) —Torpoint SX4355 (2) 3.vii.2006, det. L. Truscott — A. Pease *per* RJH; Northam SS452294 (4) ix.2005 — D.E. Paull *per* RJH

1188 *Pelochrista caecimaculana* (Hübn.) — St Teath SX0382 (2) 7.vii.2006, genitalia det. — GAC

1192 *Eucosma conterminana* (Guen.) — Tynemouth NZ364705 (67) 21.vii.2006 — TJT

1193 *E. tripoliana* (Barr.) — Higher Nichols Nymett SS691021 (4) 25.vii.2006, about 20 miles from nearest known foodplant — S.D. Beavan *per* RJH; Llangynidr SO1520 (42) 4.viii.2006, genitalia det., another inland record — JRL

1197 *E. campoliliana* ([D. & S.]) — Legar SO2117 (45) 15.vii.2004 — J.M. & P.M. Rees *per* NRL; Stamullen O146662 (**H22**) 17.vii.2006 — EO'D

1202 *E. obumbratana* (L. & Z.) — Luffness NT4780 (82) larvae in heads of *Sonchus arvensis* 10.viii.2006, moths bred — KPB

1205a *Spilonota laricana* (Hein.) — Thorp Perrow Arboretum SE2585 (65) 16.vii.2006, det. HEB — CHF, J.C. Warwick & D.M. Bowes

1207 *Clavigesta purdeyi* (Durr.) — Newport SN0538 (45) 4.ix.2006 — ADL; Tramore S578019 (**H6**) 4.viii.2004, det. K.G.M. Bond — TB; Barnland T145638 (**H12**) 5.viii.2006 — MO'D, **New to Ireland**

1209 *Pseudococcyx turionella* (Linn.) — Market Deeping TF1310 (53) 17.v.2006 — A. Drewitt *per* CS

1211 *Rhyacionia pinicolana* (Doubld.) — Wiston Wood SN0216 (45) 5.viii.2006 — RE *et al.*

1212 *R. pinivorana* (L. & Z.) — Newport, SN0538 (45) 3.vii.2006 — ADL

1216 *Enarmonia formosana* (Scop.) — Templehall NO317279 (89) 19.vi.2006 — JRL

1221 *Strophedra weirana* (Dougl.) — Coed Fenni-fach SO0128 (42) cocoons between spun leaves of *Fagus* 24.viii.2006 — NRL & JRL

1222 *S. nitidana* (Fabr.) — Fir & Pond Wood NR TL276011 (21) 28.vi.20006 — RT; Saltridge Wood SO8811 (33) 30.vi.2006, genitalia det. RGG — G.H.J. Meredith *per* RGG

1225 *Pammene obscurana* (Steph.) — Bawtry Forest SK6294 (63) 3.vi.2006, first vice-county record since 19th C. — HEB

1228a *P. ignorata* Kuzn. — Wetmoor ST7387 (33) 29.v.2006, genitalia det. D.J. Gibbs, & 9.vii.2006, genitalia det. RGG — G.H.J. Meredith *per* RGG, **Second and third British records**

1229 *P. albuginana* (Guen.) — Newton-under-Roseberry NZ5713 (62) 18.vi.2005, genitalia det. HEB — P.W. Forster *per* HEB

1230 *P. suspectana* (L. & Z.) — Berrow ST2953 (6) 7.vi.2004, genitalia det. — JAMcG

1231 *P. spiniana* (Dup.) — Glasbury SO1839 (43) 9.viii.2006, det. NRL — P.J. & V.F. Clarke *per* AMD; Llansteffan foreshore SN3510 (44) 4.viii.2006. JSB & P. Twining

1233 *P. aurita* Raz. — Mousley Bottom SJ9985 (**57**) 18.viii.2006 — SHH; Ripon SE3170 (**64**) 21.vii.2006, det HEB — D.J. & D.M. Bowes per CHF

1236a *P. herrichiana* (Hein.) — Lewesdon Hill ST4301 (**9**) 11.vi.2006 — PHS

1271 *P. gallicana* (Guen.) — Ogof Owain SH564054 (**48**) 18.vii.2006 — ANG & JEG

1246 *Grapholita tenebrosana* (Dup.) — Netherclay ST2419 (**5**) larvae in hips of *Rosa canina* agg. 17.ix.2006 — JAMcG; Oldmeldrum NJ824279 (**93**) 6.vii.2006, genitalia det. — MRY

1247 *G. funebrana* (Treits.) — Cheltenham SO9424 (**33**) four larvae in damsons 30.viii.2006 — R. Homan *per* RGG

1249 *G. lobarzewskii* (Now.) — Timsbury ST659587 (**6**) 15.vi.2006, genitalia det. — MAB; Hall Green SP1181 (**37**) 6.vii.2005 — A. Prior *per* ANBS

1251 *G. jungiella* (Cl.) — Mongorrey C2406 (**H34**) 28.v.2006 — SD

1252 *G. lunulana* ([D. & S.]) — Cheltenham SO9424 (**33**) 3.viii.2006 — R. Homan *per* RGG

1253 *G. orobana* (Treits.) — Spurn TA4115 (**61**) 7.vi.2006, conf. HEB — B. R. Spence *per* HEB

1259 *Cydia fagiglandana* (Zell.) — Barnland T145638 (**H12**) 24.vi.2006 — MO'D

1261 *C. pomonella* (Linn.) — Higher Nichols Nymett SS691021 (**4**) 4.vii.2006 — S.D. Beavan *per* RJH; Glasbury SO1839 (**43**) 20.vii.2006, det. NRL — P.J. & V.F. Clarke *per* AMD

1262 *C. amplana* (Hübn.) — Walsey Hills TG055455 (**27**) 29.vii.2006, det. JC — J. Welton & M. Otley *per* JC

1266a *C. illutana* (H. - S.) — Rewell Wood SU994092 (**13**) many at mv light 10.vi.2006 — AMD & JRL; Brierley SO6215 (**34**) 2.vii.2006, genitalia det. D.J. Gibbs — G.H.J. Meredith *per* RGG; Bulkeley Hill SJ5255 (**58**) 17.vi.2006, genitalia det. M. Dale — M. Dale & D. Taylor *per* SHH

1267 *C. cosmophorana* (Treits.) — Ipswich TM2043 (**25**) 10.vi.2006 — N. Sherman *per* AWP; Hall Green SP1181 (**37**) 10.vi.2006 — A. Prior *per* ANBS

1269 *C. conicolana* (Heyl.) — Wood Green TQ312 896 (**21**) vi.2006 — M. Ashby *per* RT

1273 *Dichrorampha petiverella* (Linn.) — near Bron-yr-on SJ058466 (**48**) 24.vii.2006 — ANG & JEG

1275 *D. flavidorsana* Knaggs — Higher Poynton SJ9483 (**58**) 29.vii.2006, genitalia det. — SHH

1279 *D. acuminatana* (L. & Z.) — Glasbury SO1839 (**43**) 26.v.2006, det. NRL — P.J. & V.F. Clarke *per* AMD

1284 *D. vancouverana* McDunnough (= *gueneeana* Obraz.) — Higher Nichols Nymett SS691021 (**4**) 24.vii.2006 — S.D. Beavan *per* RJH; St Helens SJ5195 (**59**) 3.vii.2006, det. SMP — D. Owen *per* SMP

1285 *D. plumbana* (Scop.) — Tarlair NJ7264 (**94**) 16.vii.2006 — R. Leverton *per* MRY

EPERMENIIDAE

477 *Phaulernis dentella* (Zell.) — Spear's Fishleigh SS549056 (**4**) 10.vi.2006 — S.D. Beavan & RJH; Cobham TR6967 (16) 17.vi.2006, first vice-county record since 19th C. — DJLA

481 *Epermenia falciformis* (Haw.) — Lullymore West N694264 (**H19**) 7.vii.2006 — MO'D

483 *E. chaerophyllella* (Goeze) — Hay Forest SO1936 (**42**) larvae on *Angelica sylvestris* 26.viii.2006 — JRL

484 *E. aequidentellus* (Hofm.) — Writtle College TL6706 (**19**) in RIS trap 16.vii.2005 — BG; Harlech SH574301 (**48**) 6.viii.2006, genitalia det. ANG — H. Bantock *per* ANG, **New to Wales**

SCHRECKENSTEINIIDAE

485 *Schreckensteinia festaliella* (Hübn.) — Raphoe C258043 (**H34**) 6.vi.2006 — SD

PYRALIDAE

1289 *Euchromius ocellea* (Haw.) — Bawdsey TM3338 (**25**) 29.ix.2006 — M. Deans *per* AWP; Royal Leamington Spa SP335643 (**38**) 16.ix.2006. — M. Kennard *per* NJS; Osgodby Moor TF0992 (**54**) 14.ix.2006 — CS; Glazebury SJ6795 (**59**) 20.ix.2006 — J. Wilson *per* SMP

1290 *Chilo phragmitella* (Hübn.) — Hillmorton, Rugby SP539739 (**38**) 20.vi.2005 — P. Nicholas *per* NJS; Loynton Moss SJ78952425 (39) 7.vii.2006, first county record since 1922 — M. Dale *per* DWE; High Batts NR, Ripon SE2976 (**65**) 1.vii.2006, det. HEB — CHF & J.C. Warwick

1297 *C. uliginosellus* Zell. — Moor Farm NR TF2263 (**54**) 9.vi.2006 — CS; Dolphinholme SD5252 (**60**) 30.vi.2006, genitalia det. — N.A.J. Rogers *per* SMP; Bishop Monkton SE3465 (**64**) 21.viii.2005, det. HEB — D.J. & D.M. Bowes *per* CHF

1302 *C. perlella* (Scop.) — Stamullen O146662 (**H22**) 11.vii.2005 — EO'D

1309 *Agriphila geniculea* (Haw.) — Stamullen O146662 (**H22**) 29.vii.2006 — EO'D

1316 *Catoptria falsella* ([D. & S.]) — Harlech SH574301 (**48**) 6.vii.2006, det. ANG — H. Bantock *per* ANG

1317 *C. verellus* (Zinck.) — Bonchurch SZ578783 (**10**)) 18.vii.2006 — J.Halsey *per* SAK-J; Les Effards, St Sampson, Guernsey WV332813 (**113**) 7.vii.2006 — M.P. Lawlor *per* PDMC

1329 *Donacaula forficella* (Thunb.) — Lullymore West N694264 (**H19**) 7.vii.2006 — MO'D

1330 *D. mucronellus* ([D. & S.]) — Lochwinnoch NS358581 (**76**) 1.vii.2006 — NG; Aber Bog NS437875 (**99**) 3.vii.2006 — JK

1332 *Scoparia subfusca* Haw. — Keiss ND352609 (**109**) 3.vii.2006 — MRH; Stamullen O146662 (**H22**) 26.vii.2005 — EO'D

1333 *S. pyralella* ([D. & S.]) — Tarlair NJ7264 (**94**) 10.vii.2006 — R. Leverton & MRY

1334 *S. ambigualis* (Treits.) — Stamullen O146662 (**H22**) 3.vi.2006 — EO'D

1338 *Dipleurina lacustrata* (Panzer.) — Kirkwall HY444103 (**111**) 22.vii.2006 — C.J.& J. Booth *per* SVG

1336 *Eudonia pallida* (Curt.) — Crickhowell SO2119 (**42**) 7.vii.2006 — S.B. Furber *per* NRL; Marne Barracks, Catterick SE2596 (**65**) 4.viii.2006, det. HEB — CHF, J.C. Warwick & S.P. Worwood; Harestone Moss NJ9319 (**92**) 23.vii.2006 — N. Littlewood *per* MRY

1341 *E. lineola* (Curt.) — Virkie HU392124 (**112**) 26.vii.2006, genitalia det. JC, conf. M. Nuss — P. Harvey *per* JC, *Ent. Rec.* **119**: 45

1342 *E. angustea* (Curt.) — Templehall NO317279 (**89**) 19.vi.2006 — JRL; Stamullen O146662 (**H22**) 23.ix.2006 — EO'D

1331 *Acentria ephemerella* ([D. & S.]) — Bishopton NS358581 (**76**) 22.vii.2006 — NG

1345 *Elophila nymphaeata* (Linn.) — Aber Bog NS437875 (**99**) 3.vii.2006 — JK; Stamullen O146662 (**H22**) 3.vii.2006 — EO'D

1350 *Nymphula stagnata* (Don.) — Mugdock Wood NS540772 (**86**) 20.vii.2006 — JK; Flanders Moss NS647982 (**87**) 26.vii.2006 — JK; Rosebank, Burray ND461955 (**111**) 14. vii. 2006 — J.&T. Hall *per* SVG

1356 *Evergestis forficalis* (Linn.) — Gartfairn Wood NS437889 (**86**) 16.vii.2006 — JK; Ashfield NN784037 (**87**) 6.vi.2006 — D. Pickett *per* JK; Stamullen O146662 (**H22**) 17.vii.2006 — EO'D

1356a *E. limbata* (Linn.) — Bawdsey TM3338 (**25**) 23.vi.2006 — M. Deans *per* AWP

1358 *E. pallidata* (Hufn.) — Glasbury SO1839 (**43**) 9.viii.2006, det. NRL — P.J. & V.F. Clarke *per* AMD; Stamullen O146662 (**H22**) 22.vii.2005 — EO'D

1360 *Hellula undalis* (Fabr.) — St Helens SJ5195 (**59**) 29.ix.2006 — D. Owen *per* SMP; St Peters, Guernsey WV257783 (**113**) 18.vii.2006 — PDMC

1361 *Pyrausta aurata* (Scop.) — Glasbury SO1839 (**43**) 6.viii.2006, det. NRL — P.J. & V.F. Clarke *per* AMD

1366 *P. nigrata* (Scop.) — Ledbury SO721365 (36) 18.vii.2006, first county record since 19th C. — ANBS & MRY *per* MWH

1367 *P. cingulata* (Linn.) — Flixton SJ7594 (**59**) 24.vii.2006, det. K. McCabe — B Hilton *per* SMP

1368 *Loxostege sticticalis* (Linn.) — Torpoint SX4355 (**2**) 3.ix.2006 — A. Pease *per* LACT

1369a *Uresiphita reversalis* (Guen.) — Westonzoyland ST3434 (**6**) 23.ix.2006 — D. Miller *per* AMD, *Ent. Rec.* **119**: 59-61, **New to the British Isles and Europe**

1375 *Ostrinia nubilalis* (Hübn.) — Laver Banks MoD, Ripon SE2971 (**64**) 5.vii.2006, genitalia det. HEB — CHF

1376 *Eurrhypara hortulata* (Linn.) — Templehall NO317279 (**89**) 19.vi.2006 — JRL; Aber Bog NS437875 (**99**) 17.vi.2006 — JK

1378 *Phlyctaenia coronata* (Hufn.) — Stamullen O146662 (**H22**) 7.vii.2005 — EO'D

1380 *P. perlucidalis* (Hübn.) — Broad Heath SJ852256 (**39**) 6.vii.2006 — M.R. Green *per* DWE

1382 *Anania verbascalis* ([D. & S.]) — Callington SX3569 (**2**) 14.vi.2006 — W.E. Birkett *per* LACT

1390 *Udea prunalis* ([D. & S.]) — Stamullen O146662 (**H22**) 9.vii.2005 — EO'D

1392 *U. olivalis* ([D. & S.]) — Kilmacolm NS360703 (**76**) 10.vi.2006 — NG; Gartfairn Wood NS437889 (**86**) 16.vii.2006 — JK; Keiss ND352609 (**109**) 2.vii.2006 — MRH

1393 *U. uliginosalis* (Steph.) — Nephin Beg F916133 (**H27**) 17.vii.2004 — J. Cromie, **New to Ireland**

1395 *U. ferrugalis* (Hübn.) — Lenzie Moss NS653719 (**86**) 11.ix.2006 — JK; Stamullen O146662 (**H22**) 7.vi.2006 — EO'D

1398 *Nomophila noctuella* ([D. & S.]) — Stamullen O146662 (**H22**) 17.vi.2006 — EO'D

1400 *Antigastra catalaunalis* (Dup.) — London Wetland Centre TQ225769 (**17**) 23.ix.2006 — MRH; Bawdsey TM3338 (**25**) 15.ix.2006 — M. Deans *per* AWP; Eccles-on-sea TG416285 (**27**) 21.ix.2006 — N. Bowman *per* KS; Brancaster TF801442 (**28**) 17.ix.2006 — K. Herber *per* JC; Folksworth TL148898 (**31**) 29.vii.2006 — A. Frost *per* BD; Wellingborough SP8866 (**32**) 15.ix.2006 — D. Larkin *per* DVM; Drakes Broughton SO925485 (**37**) 22.ix.2006 — K. McGee *per* ANBS; Broadholme SK9874 (**53**) 26.ix.2006 — M. Gray *per* CS; Alsager SJ8154 (**58**) 26.ix.2006 — M. Dale *per* SHH; Glazebury SJ6795 (**59**) 22.ix.2006 — J. Wilson & P. Pugh *per* SMP; St Peters, Guernsey WV257783 (**113**) 12.ix.2006 — PDMC

1403a *Duponchelia fovealis* Zell. — Leatherhead TQ1655 (**17**) to lighted window 28.viii.2006, det. JP — D.C.Gardner *per* JP; Llanfihangel Tal-y-llyn SO1128 (**45**) 26.i.2006 — D.Morgan *per* NRL; Trawscoed SH846326 (**48**) indoors 18.vii.2006 — ANG & JEG; Inchmarlo NO6796 (**91**) found dead indoors i.2006 — C.W.N. Holmes per RMP

1404 *Hymenia recurvalis* (Fabr.) — Barnet TQ258967 (**21**) 28.x.2006 — RT

1405 *Pleuroptya ruralis* (Scop.) — Gartfairn Wood NS437889 (**86**) 16.vii.2006 — JK; Ashfield NN784037 (**87**) 1.viii.2006 — D. Pickett *per* JK

1406a *Herpetogramma licarsisalis* (Walk.) – Lydd (**15**) 11.x.2006 – C. Turley *per* MRH

1408 *Palpita vitrealis* (Rossi) — Newport Pagnell SP8543 (**24**) 23 & 29.x.2006 — G. Redford *per* MVA; Witcham TL4680 (**29**) 16.ix.2006 — D. Hopkins *per* JRD; Llansteffan Castle SN351102 (**44**) 10.ix.2006 — JSB; Kate's Bridge TF1014 (**53**) 28.ix.2006 — RWG

1408a *Hodebertia testalis* (Fabr.) — St Mary's, Isles of Scilly (**1**) 17.x.2006 — M.A., W.J. & T.R. Scott, **New to the British Isles**, *Atropos* **30**: 50

1411a *Leucinodes orbonalis* Guen. — Rushmere St Andrew TM2043 (**25**) 16.ix.2006, det. M.R. Honey — JBH

1413 *Hypsopygia costalis* (Fabr.) — Cronykeery T292989 (**H20**) 25.ix.2006 — AT, **New to Ireland**

1417 *Pyralis farinalis* (Linn.) — Legar SO2117 (**45**) 28.vi.2004 — J.M. & P.M. Rees *per* NRL

1424 *Endotricha flammealis* ([D. & S.]) — Stoke Prior SO950673 (**37**) 2.ix.2006 — J. Rush *per* ANBS; Bishops Hill SP39345835 (**38**) 14.vii.2005 — NJS; Tadcaster SE4742 (**64**) 25.vii.2006 — D. Baker *per* HEB and Headingley, Leeds SE2835 (**64**) 25.vii.2006 — J.K. Bowers *per* HEB

1425 *Galleria mellonella* (Linn.) — Hutton Conyers SE3273 (**65**) 12.ix.2006, det. HEB — CHF

1426 *Achroia grisella* (Fab.) — Castell Henllys SN118389 (**45**) 22.vii.2006, genitalia det. JRL — North Pembs Moth Group *per* ADL; Woodhead NJ7939 (**93**) 30.viii.2006 — H. Taylor *per* MRY

1427 *Corcyra cephalonica* (Staint.) — Far Ings NR TA010232 (**54**) 15.vi.2005 — A. McGowan *per* CS

1438 *Trachycera suavella* (Zinck.) — Bishop's Cleeve SO9627 (**33**) 17.vii.2006 — J.S. Brock *per* RGG

1439 *T. advenella* (Zinck.) — Bishopton NS433694 (**76**) 22.vii.2006 — NG; Lenzie Moss NS653719 (**86**) 24.vii.2006 — JK; Dumbarton NS386752 (**99**) 5.viii.2006 — K. Futter *per* JK; Stamullen O146662 (**H22**)17.vii.2005 — EO'D

1441 *Oncocera semirubella* (Scop.) — Studham TL0217 (**30**) 24.vii.2006 — C.R.B. Baker *per* DVM Tynemouth NZ364705 (**67**) 24.vii.2006 — TJT; St Peters, Guernsey WV257783 (**113**) 22.ix.2006 — PDMC

1444 *Pempelia obductella* (Zell.) Ranmore Common TQ1450 (**17**) 15.vii.2005 — D.A. Coleman *per* JP

1445 *P. formosa* (Haw.) — Glasbury SO1839 (**43**) 1.vii.2006, det. NRL — P.J. & V.F. Clarke *per* AMD, **New to Wales**; Tadcaster SE4742 (**64**) 30.vi & 1.vii.2006, conf. HEB — D. Baker *per* HEB; Tynemouth NZ364705 (**67**) 1.vii.2006 — TJT

1446 *Salebriopsis albicilla* (H. – S.) — Queens Wood SO6728 (**36**) 2.vii.2006 — J. Rush *per* MWH

1447a *Sciota adelphella* (F. v. R.) — Wyke Regis SY6676 (**9**) 29.vi.2006 — D. Foot *per* PHS

1449 *Elegia similella* (Zinck.) — Minsmere RSPB TM4767 (**25**) 18.vii.2006 — JBH & JRL; Collyweston Great Wood TF0100 (**32**) 3.vii.2006 — R. Follows *per* DVM; Queens Wood SO6728 (**36**) 10.vii.2006 — J. Rush *per* MWH

1451 *Pyla fusca* (Haw.) — Broadholme SK9874 (**53**) 28.vii.2006 — M. Gray *per* CS

1451a *Etiella zinckenella* (Treits.) — Hornsey (**21**) 27.vii and 8.ix.2006 — M.J. Ashby, *Ent. Rec.* **118**: 200-201

1454 *Dioryctria abietella* ([D. & S.]) — Minwear SN0513 (**45**) 1.vii.2006 — RE et al.; Tomintoul NJ165192 (**94**) 4.viii.2006 — T. Boardman *per* MRY; Milngavie NS560745 (**99**) 22.vii.2006 — JK

1454b *D. sylvestrella* (Ratz.) — Maenporth (**1**) 2.vii.2006 — G. Davis, *Atropos* **30**: 54; Pembrey Forest SN3803 (**44**) 3.vii.2006 — JSB, **New to Wales**; Ellington Banks MoD SE2773 (**64**) 14.ix.2005, det. HEB — CHF & J.C. Warwick

1456 *Epischnia bankesiella* Rich. — Porth China, Aberffraw, Anglesey. SH333683 (**52**) larvae on *Inula crithmoides* 6.ix.2006 — IFS

1458 *Myelois circumvoluta* (Geoff.) — Ballinoulart Dunes T207433 (**H12**) 1.vii.2006 — MO'D; Stamullen O146662 (**H22**) 9.vii.2005 — EO'D

1461 *Assara terebrella* (Zinck.) — Bayfordbury Pinetum TL3110 (**20**) 15.vi.2005 — CWP

1464 *Gymnancyla canella* ([D. & S.]) — Poltesco SW7215 (**1**) 19.vii.2006 — M. Tunmore, *Atropos* **30**: 52; Grain TQ8876 (**16**) 3.vii.2006 — A.G.J. Butcher *per* DJLA

1464a *Zophodia grossulariella* (Hübn.) — Scole TM150792 (**27**) 22.vi.2006 — M. Hall *per* KS

1465 *Nephopterix angustella* (Hübn.) — Old Sulehay Forest TL0698 (**32**) 5.ix.2006 — R. Follows *per* DVM

1467 *Ancylosis oblitella* (Zell.) — saltmarsh near Instow Barton SS478324 (**4**) three 18.viii.2006 — S.D. Beavan & RJH; Gelli Isaf, Rhydcymerau SN572395 (**44**) 13.ix.2006, det. JSB — M. Lovell *per* JSB

1469 *Euzophera cinerosella* (Zell.) — Cheltenham SO9424 (**33**) 12.vi.2006 — R. Homan *per* RGG

1470 *E. pinguis* (Haw.) — Glasbury SO1839 (**43**) 6.viii.2006, det. NRL — P.J. & V.F. Clarke *per* AMD; Tynemouth NZ364705 (**67**) 29.vii.2006 — TJT

1474 *E. parasitella* Staud. — Roughton TF2464 (**54**) 29.vi.2006, genitalia det. CS — K. Robertson *per* CS

1478b *Vitula biviella* (Zell.) — Rushmere St Andrew TM2043 (**25**) 19.vii.2006, genitalia det. — JBH

1479 *Plodia interpunctella* (Hübn.) — Rippingdale TF0892 (**53**) 20.vi.2005 — J. Lamin *per* CS; Barnbrock NS357640 (**76**) 3.ix.2006 — NG

1480 *Homoeosoma nebulella* ([D. & S.]) — Old Weston TL099774 (**31**) 31.viii.2006, genitalia det. BD — K. Royles *per* BD

1483 *Phycitodes binaevella* (Hübn.) — Lullymore West N694264 (**H19**) 7.vii.2006 — MO'D; Stamullen O146662 (**H22**) 6.ix.2005 — EO'D

1484 *P. saxicola* (Vaugh.) — Tarlair NJ7264 (**94**) 16.vii.2006 genitalia det. MRY — R. Leverton *per* MRY; Keiss ND352609 (**109**) 5.vii.2006, genitalia det. — MRH

PTEROPHORIDAE

1490 *Oxyptilus parvidactylus* (Haw.) — Long Compton SP269291 (**38**) 9.vii.2005, det. NJS — C. Ivin & R. Bliss *per* NJS

1494 *Capperia britanniodactyla* (Gregs.) — Morkery Wood SK950185 (53) 22.vi.2005 — RWG

1495 *Marasmarcha lunaedactyla* (Haw.) — Rippingale TF0927 (53) 1.vii.2006 — P. Warman *per* CS

1496 *Cnaemidophorus rhododactyla* ([D. & S.]) — Cavenham Heath TL7572 (26) 15.vii.2006 — AWP

1500 *Platyptilia calodactyla* ([D. & S.]) — Elveden Forest TL 7980 (26) 4.vii.2006 — HEB

1501 *P. gonodactyla* ([D. & S.]) — Glasbury SO1839 (43) 12.vii.2006, det. NRL — P.J. & V.F. Clarke *per* AMD; Hutton Conyers SE3273 (65) 31.viii.2006, det. HEB — CHF; Stamullen O146662 (**H22**) 11.vii.2005 — EO'D

1504 *P. pallidactyla* (Haw.) — Stamullen O146662 (**H22**)19.vii.2006 — EO'D

1508c *Stenoptilia annadactyla* Sutter — King's Forest TL8173 (26) 26.vi.2004, genitalia det. JBH — JBH & S.J. Read

1518 *Ovendenia lienigianus* (Zell.) — Whisby Nature Park SK9166 (53) 3.vii.2006 — P. Porter *per* CS

1524 *Emmelina monodactyla* (Linn.) — Bucksburn NJ8910 (92) 13.x.2006 – RMP; Dumbarton NS386752 (99) 6.x.2006 — K. Futter *per* JK; Stamullen O146662 (**H22**) 23.vii.2006 — EO'D

CORRECTIONS

to the 2002 Review:

24 *E. turbidella* (Zell.) — Ipswich TM2043 (25) mines 1.x.2002 — N. Sherman *per* AWP; Mildenhall TL7276 (26) mines on *Populus canescens* 25.ix.2002 — JC & AWP **The whole entry should be deleted**

to the 2003 Review:

1403 *Diasemiopsis ramburialis* (Dup.) **should read** — Pembrey Forest SN3901 (44) 18.viii.2003 — JB

to the 2005 Review:

397 *G. thrasonella* (Scop.) **should read** — Mongorrey, Raphoe C2305 (**H34**) 11.vi.2005, det. AT — SD

403 *Argyresthia glabratella* (Zell.) **should read** — Bold Moss, St Helens SJ5494 (59) 7.vi.2005, genitalia det. SMP — R. Banks *per* SMP

1358 *Evergestis pallidata* (Hufn.) — **the following record should be deleted**: Craik NT346084 (80) 16.vii.2005 — JW

RESTING POSTURES OF LARGE YELLOW UNDERWING *NOCTUA PRONUBA* ([L.], LEP.: NOCTUIDAE) FINAL INSTARS

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Abstract

The frequency of occurrence of the daytime resting postures of Large Yellow Underwing *Noctua pronuba* ([L.], Lep.: Noctuidae) final instars is reported. A coiled resting posture was most frequently observed, but there was no evidence of asymmetric bias in coiling clockwise or anticlockwise, at either the population or the individual level. Asymmetric bias was also lacking in another resting posture class. A significant relationship was found between the number of runs of similar resting posture and time, so final instars do not have a persistent daytime resting posture. The absence of any asymmetrical bias in their resting behaviour is discussed.

Introduction

Like other Noctuidae larvae, *Noctua pronuba* feed at night (Porter, 1997) on a variety of herbs and grasses (Heath & Emmet, 1983, Waring & Townsend, 2003). During daylight, they are inactive and usually in the soil (Porter, 1997, Waring & Townsend, 2003), where they remain hidden from the view of predators and human observers. Anyone rearing them in a transparent container (such as a Petri dish) will know that, as in the wild, they feed during darkness and remain concealed, if possible, during the day, usually beneath their food plant. If their leafy cover is lifted or removed, their resting posture can be observed (Dockery, 2007). Although many lepidopterists will have observed these resting postures they do not seem to have recorded their data, though the resting postures of other animals, such as cottonmouth snakes *Agkistrodon piscivorus leucostoma* (Roth, 2003), have been noted.

Roth (2003) was interested in behavioural asymmetry, i.e. displaying a preference for using a particular limb, eye, hand, wing, etc.. Behavioural asymmetry has been reported in higher vertebrates for more than 50 years (for a review see Rogers & Andrew, 2002) and in lower vertebrates over the last couple of decades (for a review see Vallortigara *et al.*, 1999). Roth set out to evaluate evidence for behavioural asymmetry at both the population level and individual level in cottonmouth snakes when they are coiled, a posture in which they spend most of their time. When coiled and ready to strike at prey, or an attacker, a snake has to act quickly to co-ordinate its sensory inputs, the associated cognitive processes and the subsequent behavioural output. This control could require asymmetries in the brain, as seen in other organisms which show behavioural preferences, such as limbs in lizards (Deckel, 1995) and eyes in toads (Robins *et al.*, 1998). Amaral (1927) had suggested that behavioural asymmetry in coiling posture may occur in snakes but this remained untested until Roth (2003) carried out his research.

During the summer of 2005 I made a few casual observations of the resting postures of final instars of *N. pronuba* and recognized a number of posture resting

classes (Dockery, 2007). This suggested that it would be valuable to conduct further study to determine if asymmetrical bias in coiling of *N. pronuba* final instars occurred. In the summer of 2006 I carried out a more detailed investigation of a sample (N = 59) of final instars of *N. pronuba*, which is reported here.

Roth (2003), recognized four classes in his study of the resting postures of cottonmouth snakes. The classification I used was based on Roth's, with some changes. This produced four larval resting posture classes, which were: 'coiled', 'outstretched', 'S-shape' and 'J-shape', see Figure 1. In each case, a larva was viewed from above, with the shape description being defined from the head of the caterpillar and extending along its body.

The coiled class was subdivided into two groups, 'clockwise' and 'anticlockwise' postures. It was also possible to subdivide the clockwise and anticlockwise classes into 'closed' (when the head of a larva was in contact with one of its abdominal segments or an anterior proleg) or 'open' (no contact). Finally, the J-shape resting posture class was subdivided into larvae that were resting 'left' (when the curl of the J was in the traditional manner of the letter of the alphabet) or 'right' (when the curl was pointing the other way). These types are illustrated in Figure 1: reference to Porter (1997) will provide photographs of the types that are identified here.

The aim of the study was to assess the frequency of occurrence of the resting postures of final instars of *N. pronuba,* to determine if an asymmetric bias in resting posture was evident at the population or individual level and to assess the nature of the relationship between the number of runs of similar resting posture and time.

Materials and Methods

In September 2006, *N. pronuba* eggs were obtained from females held captive after being trapped at light in Urmston, Manchester (O.S. grid reference SJ 770947) and in St Peters, Guernsey (WV 257783). The eggs were placed in clean 500 g margarine tubs, each with a cover of fine plastic netting, until the larvae emerged. On hatching, a number of larvae were put into several clean tubs with fresh leaves of Broad-leaved Dock *Rumex obtusifolius* and/or Dandelion *Taraxacum* spp. Every two days for the next few weeks the larvae were moved from their old tub to a clean tub and given fresh leaves. The soiled tubs were cleaned and left overnight in a bucket of cold water and a mild solution of a sterilizing agent (Milton). The following day the tubs were dried, ready for the next transfer of larvae.

When each caterpillar was a final instar, it was transferred, using a soft artist`s brush and a plastic spoon, to a clean plastic Petri dish (8 cm in diameter), together with one or two pieces of fresh leaf, and left on a table overnight. The following day, between 14.00 and 16.00 hours, each Petri dish was opened, the leaf picked up with forceps and the resting posture of the larva recorded. After the information was noted, the larva was transferred to a clean Petri dish, with fresh leaves, returned to the table and left undisturbed for the next 24 hours. This procedure was followed each day until each larva pupated, or died. The period of data collection ran from 28 October 2006, when the first final instar was isolated, to 16 January 2007 when the

last larva pupated: the range of the number of days of observation of each larva was 6-77 days. In all, 59 final instars were observed, resulting in 2310 records of *N. pronuba* larval resting postures.

Since only one resting posture observation per final instar per day was recorded, and 22-24 hours elapsed between recordings when a larva would have been active in the dish, each observation was regarded as independent.

Results

Table 1 shows the frequencies of occurrence of the four resting posture classes. The coiled class accounts for approximately two thirds of the total number of observations, with the outstretched, S-shape and J-shape classes accounting for the remaining third. The dominance of the coiled posture class is apparent, with a Chi-square (χ^2) test showing a significantly greater number of occurrences [χ^2 = 2145.224, df = 3, P < 0.001] than the other three classes. So *N. pronuba* final instars preferentially rest in the coiled posture.

Looking at the two subdivisions of the coiled class, no significant difference in the frequency of postures [χ^2 = 0.888, df = 1, P > 0.05] was found between the clockwise and anticlockwise classes. For both the clockwise and anticlockwise posture classes there was a significant difference in the frequencies in the open and closed postures, in both cases [clockwise – χ^2 = 278.91, df = 1, P < 0.001 : anticlockwise – χ^2 = 165.476, df = 1, P < 0.001] the open posture was recorded more frequently. However, there was no significant difference [χ^2 = 0.888, df = 1, P > 0.05] between the two posture classes in the proportions in the open and closed groups.

To assess if asymmetrical bias was evident at the population level for the coiled posture class the Sign test was used: 8 larvae had an equal number of occurrences of clockwise and anticlockwise postures, 21 larvae showed a greater frequency of clockwise resting postures and 30 showed a greater frequency of anticlockwise postures, but this was not siginificant [Sign test: N = 51, P = 0.2626.] So at the population level, *N. pronuba* final instars show no significant asymmetrical bias in their resting postures. To assess if such a bias was evident at the individual level for the clockwise and anticlockwise postures the Chi-square test was used on the frequencies for each individual larva. The value was significant [χ^2 = 5.2609, df = 1, P < 0.05] for only one final instar (which showed 6 clockwise resting postures and 17 anticlockwise postures). So bias is not evident at the individual level either.

The other element of potential asymmetrical bias that was tested was for those larvae which rested in the J shape posture class. No significant difference in the total number in each class was found [χ^2 = 0.039, df = 1, P > 0.05.], so final instars were as likely to rest turned to the left as to the right. It was possible to test to see if a bias was evident at the population level: 22 larvae showed a greater number of left curls, 23 larvae a greater number of right curls and 14 showed an equal number, but this was not significant [Sign test: N = 45, P = 1.000.] So at the population level, *N. pronuba* final instars showed no significant asymmetrical bias in their propensity to

Table 1 Frequencies of occurrence of *Noctua pronuba* final instars in the resting posture classes.

Posture Class			**Frequency**	%
Coiled	*Clockwise*	Open	605	(26.19%)
		Closed	147	(6.36%)
	Anticlockwise	Open	650	(28.14%)
		Closed	139	(6.02%)
Outstretched			277	(11.99%)
S-shape			261	(11.29 %)
J-shape	*Left*		117	(5.06%)
	Right		114	(4.94%)
			Total	2310

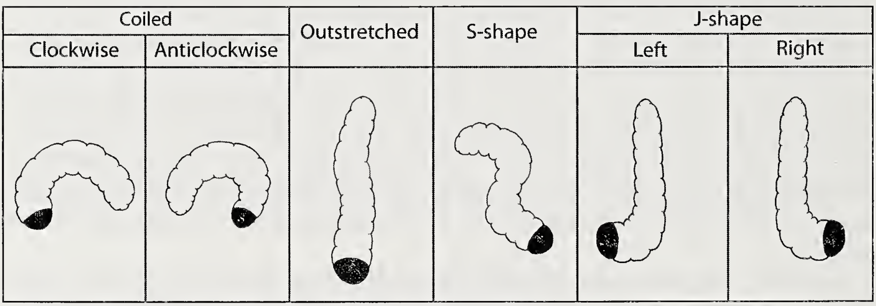

Fig 1. Examples of the resting posture classes recognized.

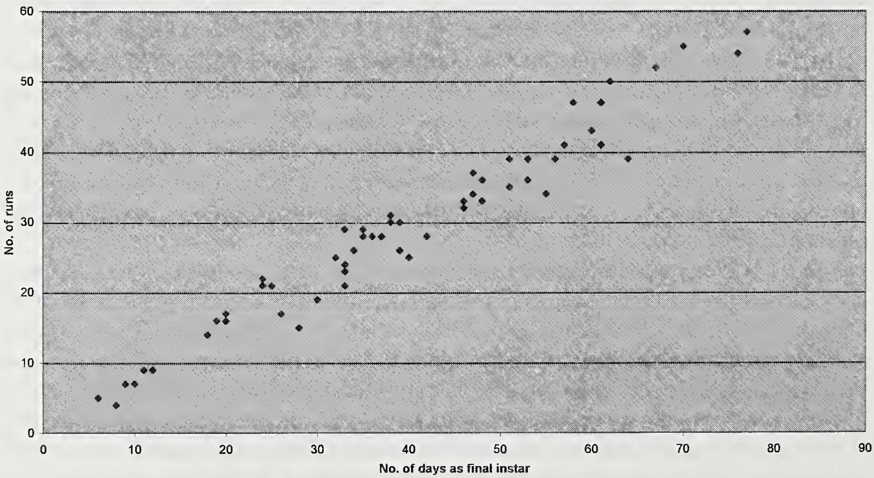

Fig 2. Relationship between the number or runs of similar resting posture (coiled, outstretched, S shape and J shape) and the number of days of observation.

curl to the left or right in the J shape resting posture class. Only 4 final instars rested sufficiently frequently in the J shape posture class to allow investigation as to whether differences occurred at the individual level: none were significantly different from chance, [$\chi^2 = 0.333$, df = 1, P > 0.05; $\chi^2 = 0.333$, df = 1, P > 0.05; $\chi^2 = 0.333$, df = 1, P > 0.05; and $\chi^2 = 0.400$, df = 1, P > 0.05].

For each *N. pronuba* final instar the number of runs of similar resting posture (coiled, outstretched, S shape or J shape) over its period of observation (days) was determined. The strength of the relationship between the two variables was significant [R = 0.773, N = 59, P < 0.001], see Figure 2.

Discussion

This investigation found that *N. pronuba* final instars preferentially adopt the coiled resting posture when at rest during daylight, at least when they are in a Petri dish. The coiled posture was defined as either coiling clockwise or anticlockwise and both were found to be equally likely to be adopted, at both the population level and the individual level. So there was no asymmetrical bias in coiling in *N. pronuba* final instars. This finding is unlike that of Roth (2003) for cottonmouth snakes, as at both the individual and population levels a preference for clockwise coiling was found. Although Roth (2003) was unclear as to why this preference was found in snakes it was suggested that it might allow a snake to have finer control over body movements that would be crucial for survival, perhaps when striking at prey or at a possible attacker. Behavioural asymmetry is certainly found in many species. Thus, capuchin monkeys *Cebus apella* (Lacreuse & Fragaszy, 1999) show a left hand bias for carrying out complex tasks. However, it seems unlikely that the posture adopted by a herbivorous caterpillar at rest would require such fine body control. When resting above ground during the day, the caterpillars are usually at the base of grasses or herbs (Waring & Townsend, 2003) and are relying on cryptic coloration, cover and immobility to avoid detection by predators. When first disturbed in their Petri dish by having a dock or dandelion leaf removed, most larvae remained motionless, moving only if stimulated again by the artist`s brush, so whether they are coiled clockwise or anticlockwise is not likely to be critical to their survival.

One significant difference that was found was the preference for coiling in the open rather than the closed posture when the leaf was removed. It may be that this posture could change with further tactile stimulation. The closed posture was frequently observed, though not recorded, after stimulation by the artist`s brush when a caterpillar was moved from one Petri dish to another. Pulling the body into a tight coil would not only reduce the area exposed to attack but might also allow a larva to fall off a leaf or grass stem onto the ground, and perhaps avoid detection. Dropping from a foodplant is a common anti-predator strategy (Wagner, 2005). He notes that some caterpillars show a strong wriggling behaviour when attacked which throws them onto the leaf litter below.

The other postural classes, outstretched, S-shape and J-shape were significantly less frequently seen than the coiled class. It is possible that these postures are more

likely to be seen when larvae are feeding. Anecdotal evidence for this comes from Porter's work (1997). He notes that the photographs of caterpillars of moths and butterflies were "taken at night when feeding". The outstretched and S-shape posture classes are dominant but these larvae were moving and/or feeding, not resting. So perhaps final instars may have been in the outstretched, S-shape or J-shape posture after their last bout of feeding and then switched to the coiled posture as dawn approached. Of course, the larvae in this study were only able to operate in the horizontal plane as the Petri dishes were 13 mm high and this may have been a constraint to adopting some resting posture classes.

Asymmetrical bias in resting was also absent in the J-shape posture class, at least at the population level. Final instars were equally likely to rest curled to the left as to the right. The absence of asymmetrical bias for coiling and for the J-shape posture class suggests that there is no advantage to a larva to rest in a particular postural position.

It is clear from these data that the resting posture of *N. pronuba* final instars varies, with coiling the most frequently observed posture. When the sequence of resting posture was analysed a relationship between the number of runs of similar posture and time was evident. Final instars change their resting posture frequently so runs of similar posture class are short. This would again suggest that there is little advantage to be gained by a final instar in always resting in the same way. Final instars spend most of their time in the soil before pupating (Heath & Emmet, 1983) so the mode of resting is probably not critical. Visually hunting predators would also be unlikely to attack as they would not see the moth below ground.

Although there is little known about the adaptive significance of resting postures in moth caterpillars, coiling is the most frequently occurring posture, as in cottonmouth snakes (Roth, 2003). However, unlike cottonmouth snakes, no behavioural lateralization was evident in coiling, and the subterranean resting site of final instars may be influential. Green (1997) notes that the internal anatomy of many snakes is not symmetrical and this may be linked with the asymmetrical bias in coiling. The internal structure of caterpillars is more symmetrical but this would not necessarily predispose resting behaviours in *N. pronuba* final instars to be symmetrical. However, earlier work with *N. pronuba* and *N. comes* (Dockery, 2003, 2005) found no asymmetrical bias in adults for forewing folding or antennal grooming. These three behaviours therefore show no evidence of lateralization. This is not to say that some behaviours in moths may not have an asymmetrical bias. It may simply require more research to expose them, in a similar way that research over the last couple of decades has demonstrated behavioural asymmetries in lower vertebrates (Bisazza *et al.*, 1998).

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Recent changes in the distribution and status of the Toadflax Brocade *Calophasia lunula* (Hufn.) (Lep.: Noctuidae) in Britain

A comprehensive review and evaluation of the UK distribution of the Toadflax Brocade moth was published by Mark Parsons (2000. *Ent. Rec.* **112**: 115-120). This covered the period from the first authenticated record at Shoreham, West Sussex (VC 13) in 1939, up to and including 1999 when he carried out an *ad hoc* survey of larvae along the Kent, Sussex and Hampshire coasts. Parsons gathered evidence of breeding from nine 10-kilometre squares between Pagham Harbour, West Sussex and Kingsdown, Kent (VC 15). He also listed historic records from Essex, Kent, Sussex, Surrey, Hampshire and Dorset, noting significant breeding colonies in the 1950s at coastal locations in Sussex, Kent and Essex. Other historic records of adults and larvae from a few inland sites had not led to colonisation, and Parsons concluded that the moth appeared unable to establish itself away from the coast. Colin Pratt (1999. *A Revised History of the Butterflies and Moths of Sussex*. Booth Museum of Natural History), also noted that it had not colonised seemingly suitable sites along the Sussex coast in spite of the presence there (and throughout the county generally), of one of its food plants, common toadflax *Linaria vulgaris*. The *Red Data Book* status of the moth was retained in *Field Guide to the Moths of Great Britain and Ireland* (Waring and Townsend, 2004. British Wildlife Publishing) and it remained on the UK Biodiversity Action Plan Priority List, with recommendations for future monitoring. Like Pratt, these authors considered that the moth's current occurrence in the UK resulted from immigration and expansion from existing coastal colonies. Inland records were judged likely to be of primary migrants or vagrants.

Ironically, shortly after these publications were made, the Toadflax Brocade experienced a sudden and somewhat rapid expansion of range with many larvae and adults being seen at new inland and coastal sites. Most surprisingly perhaps, it has colonised parts of London, in keeping with the fortunes of some other species previously considered as being primarily coastal (e.g. Jersey Tiger *Euplagia quadripunctaria* (see Plant, 2006. Jersey Tiger *Euplagia quadripunctaria* (Poda) (Lep.: Arctiidae) in south-east London. *Ent. Rec.* **118**: 231), Tree-lichen Beauty *Cryphia algae* and more recently Plumed Fan-foot *Pechipogo plumigeralis* [Freed, in prep.]).

Restrictions on the size of this note and the number of observations made since 2000 have made it necessary to summarise many of the following records, which are listed chronologically. Records of larvae and those demonstrating expansion beyond its pre-1999 range have been prioritised.

The moth was taken on 30 May 2000 at Dovercourt, North Essex (VC 19) (C. Gibson), this being the first adult record in the county since 1954. In 2001, the first Suffolk (VC 25) record was made at Landguard on 28 June (N. Odin). On 18 May 2002 the first Middlesex (VC 21) record was made at Wembley (G. Geiger), and a few weeks later another was seen at Merton Park, Surrey (VC 17) (A. Galsworthy). Further records were made in North Essex that year bringing the county total to five since 2000 (Davis, *et al.* 2003. *Lepidoptera Conservation Bulletin No. 4.* Butterfly

Conservation). More Middlesex records followed in 2003: one at Hornsey (M. Ashby), two at Enfield (A. Middleton), and larvae were discovered on purple toadflax *Linaria purpurea* in Mile End Cemetery in September (T. Lyle; C. W. Plant). One adult was seen on 28 June in South Essex (VC 18). In 2004, the moth was again seen in north London with singletons at Wembley (G. Geiger) and Haringey (H. Bantock) and three more were noted at Hornsey (M. Ashby). Across the Thames eleven larvae were found on one isolated clump of common toadflax in Greenwich Park, West Kent (VC 16) (T. Freed). In the same year the moth continued to disperse in coastal areas with at least seven seen at Dovercourt, North Essex (C. Gibson). A second record for Suffolk came from Rendham (M. Deans) and larvae were found at two coastal sites in the county (N. Sherman, A. Prichard and N. Cuming) (Prichard, 2004, 2005. *Suffolk Moth Group Newsletters Issues 34 and 37*). Also in 2004, the moth reached Norfolk (VC 27) where the first county record was made on 4 June at Barnham Broom followed by one on 12 June (J. and J. Geeson); another specimen was taken at Stoke Holly Cross on 7 June (A. Musgrove) (2004. *Norfolk Moth Survey Newsletter No. 66*). In Dorset (VC 9) an adult was taken at Weymouth (P. Harris). Further signs of colonisation in London followed in 2005: in Middlesex four larvae were found on common toadflax in Kensal Green Cemetery (T. Freed), an adult was taken again at Wembley (G. Geiger) and several were taken again in Hornsey (M. Ashby). In Surrey, the moth was seen at Wimbledon and at South Croydon (G. Collins). In North Essex a singleton was seen at Kirby-le-Soken (P. Bergdahl), and three were recorded at Woodford Green (R. Barfoot). More records came from Middlesex in 2006 with larvae at Greenford on 15 August (N. Anderson) and Edmonton on 23 August (A. Middleton). Adults were seen on five dates at Hornsey (M. Ashby), four dates at Parliament Hill (R. Softly), and on single dates at Wembley (A. Self), Enfield (A. Middleton), and Greenford (A. Culshaw). In August that year larvae were found in a garden at East Barnet (P. Alton), constituting the first record for Hertfordshire (VC 20) (Plant, 2008. [in press]. *The Moths of Hertfordshire.* Herts. Nat. Hist. Soc.). Beyond London, the moth was seen at new sites in nearly all the counties from which it had recently been recorded. Finally in 2007, eight larvae were found on purple toadflax on 23 June at Ham Common, (T. Freed), this being the first evidence of breeding in Surrey. Another adult was taken at South Croydon (G. Collins). In all, the moth was noted from at least four sites in this county since 2000.

During the period 2000-2006, the moth continued to thrive at its known sites in Sussex and Kent where additional records of larvae and adults were made in several new 10 km squares. However, colonisation of inland sites was not recorded in Sussex during this period (Colin Pratt, pers. comm.). Monitoring larvae in Sussex in 2001 produced counts of 159 on 4 June, and 226 on 25 June at Pagham Harbour, and of 450 at Pevensey Bay (Parsons, *et al.* 2002. *Lepidoptera Conservation Bulletin No. 3.* Butterfly Conservation). Further monitoring at Pagham Harbour on 28 June 2003 found 242 larvae (133 on purple toadflax and 109 on common toadflax) (Hoare, *et al.* 2004. *Lepidoptera Conservation Bulletin No.5.* Butterfly Conservation).

To conclude, there has been a considerable expansion in the moth's UK distribution since 2000. This includes first county records for Middlesex, North Essex, Suffolk, Norfolk and Hertfordshire. It has become an established resident in north London, where adults have been seen annually since 2002 and larvae in 2003, 2005 and 2006. This expansion (and that of purple toadflax) has been linked with periods of increased climate warming (see Pratt, loc. cit.). A recent review of its status as a UK Biodiversity Action Plan species found that the moth no longer met the UK Priority List stage 1 criteria, and would therefore be removed from the list (2007. Biodiversity Reporting and Information Group. *Report on the Species and Habitat Review*. Annex 2).

I would like to thank the following for their invaluable help: Colin Plant (Hertfordshire and Middlesex Moth Recorder) for providing most of the data from those areas, Colin Pratt (Sussex Lepidoptera Recorder), Graham Collins (Surrey Moth Recorder), Paul Wheeler, Ray Softly, and to Steve Nash for providing *Immigration of Lepidoptera* records for 1999-2004. I apologise for any errors or omissions of important records.— Tim Freed, 29 Upper West Drive, Ferring, West Sussex BN12 5RG (E-mail: timfreed@talk21.com).

Small Ranunculus *Hecatera dysodea* (D.& S.) (Lep.: Noctuidae) reaches Bristol

During 2007, I ran a Robinson MV trap on many nights at a site in south-east Bristol (O. S. grid reference ST 67, VC 6). On the night of 6 July 2007, the catch included a Small Ranunculus. Formerly a widespread and locally common resident of south-east England and East Anglia, this species became extinct in Britain early in the last century. Since 1997, it has recolonised Kent (Agassiz & Spice, 1998. *Ent. Rec.* **110**: 229-232; Parkes, 1999. *Atropos* Number 6: 12-15; Parkes, 2000. *Atropos* Number 10: 22-24) and since 1999 it has been recorded at an increasing number of sites in Newport, South Wales (White, 2000. *Ent. Rec.* **112**: 37; James, 2006. *Monmouthshire Moth and Butterfly Group Newsletter* no. 34). Recent published records include individuals in Suffolk (Anon, 1999. *Atropos* Number 8: 55), Essex (Down, 2000. *Atropos* Number 9: 84), Middlesex (Plant, 2000. *Ent. Rec.* **112**: 204) and Cardiff (Cardiff Biodiversity Action Partnership 2005) while postings on the Internet at the 'UKMoths Yahoo! group' list apparently unpublished records from Bedfordshire, Peterborough, Leicestershire, Wiltshire and Merseyside. This present record from Bristol adds another part of the country to this recent resurgence of records. Heath & Emmet (1983. *Moths and Butterflies of Great Britain and Ireland*) map three old records from Somerset, the most recent being in 1935; David Evans, County Moth Recorder for Somerset, is unaware of any modern records for that county. Roger Gaunt, County Moth Recorder for Gloucestershire, is unaware of any for that county either, though it is possible that there are other recent records which have not made their way to these recorders or into print). Thanks to my partner, Martyn Hall, for photographing the moth, and to Colin Plant for verifying the identification from a photograph.— Steve Preddy, Bristol (address withheld). (E-mail: Steve.Preddy@blueyonder.co.uk).

Moths and moth recorders in Lancashire – a changing scene

There is a long established tradition of moth recording within north-west England, well documented in the *Annual Report and Proceedings of the Lancashire and Cheshire Entomological Society*, first published in 1877. In recent years, particularly since the mid 1990s, there has been a considerable increase in those taking an interest in the moths of the region. The bulk of the recording effort relates to light-trapping in gardens, but there has also been an upsurge in those individuals carrying out daytime fieldwork including searching for and rearing larvae, particularly microlepidoptera. As a result, changes occurring in species diversity and distribution can now be more accurately assessed. This note details some of those changes occurring within the moth (macro and micro) fauna of Lancashire and the people who record them.

The areas covered by this article are the Watsonian Vice-counties 59 (South Lancashire) and 60 (West Lancashire) and a total of 1,490 species have been recorded therein to the end of year 2006. It has not yet been possible to assess how many of these are in a gradual decline, but as a result of general recording effort, targeted fieldwork, literature searches and considerable amounts of record entry into a mapping database (MapMate), it is now possible to suggest that at least nine species of macro-moth have been lost to the county during the twentieth and early twenty-first centuries. These are summarised as follows:

Table 1. Species apparently extinct in Lancashire.

Species	English name	Decade of last record
Phibalapteryx virgata	Oblique Striped	1950s
Cosmia diffinis	White-spotted pinion	1950s
Scotopteryx bipunctata	Chalk Carpet	1960s
Hemaris tityus	Narrow-bordered Bee Hawk-moth	1960s
Euxoa cursoria	Coast Dart	1960s
Xylena exsoleta	Sword-grass	1960s
Eriogaster lanestris	Small Eggar	1980s
Rheumaptera hastata	Argent and Sable	1980s
Pechipogo strigilata	Common Fan-foot	1980s

Annual searches continue for some of these, including Chalk Carpet, Narrow-bordered Bee Hawk-moth, Sword-grass and White-spotted Pinion, but have so far failed to produce any positive results. A slim hope remains of re-finding Argent and Sable, as suitable habitat seems to be present in a few localities. Oblique Striped is a species that may have been over-looked and efforts will be made in the next few years to establish if this is the case.

In addition to the losses, significant population declines appear to have occurred amongst a number of resident species. Those species which have been reported by

recorders in the county as showing the most marked declines in gardens in recent years include, *Abraxas grossulariata* (Magpie), *Macaria wauaria* (V-moth), *Arctia caja* (Garden Tiger), *Euxoa nigricans* (Garden Dart), *Graphiphora augur* (Double Dart), *Tholera cespitis* (Hedge Rustic), *Cucullia absinthii* (Wormwood) and *Agrochola litura* (Brown-spot Pinion). Many of these are also declining nationally (Fox, R., Conrad, K.F., Parsons, M.S. and Woiwod, I.P. 2006. *The state of Britain's larger moths.* Butterfly Conservation and Rothamsted Research, Wareham, Dorset). However, as records (or lack of) in Lancashire indicating serious declines are obtained almost exclusively from variable effort light trapping, caution should be exercised when interpreting these results. It is more difficult to assess what is happening to the populations of the many species, large and small, not being monitored by this method.

Several species have been reduced to single site populations in Lancashire. These are as follows:

Adscita geryon (Cistus Forester)	*Lasiocampa trifolii* (Grass Eggar)
Scythris falacella	*Lycia zonaria* (Belted Beauty)
Trichiura crataegi (Pale Eggar)	*Luperina nickerlii* (Sandhill Rustic)

Reductions or deterioration in quality of suitable areas of habitat seem to be the main reason for these declines.

In complete contrast to these rather gloomy statistics, at least eighteen resident species have shown an increase in numbers and a noticeable expansion of their geographical range; these are listed in Table 2. Many of these are utilising gardens, hedgerows with scattered mature trees, small wooded areas or rough ground including brown-field sites. An increase in the number of people studying the microlepidoptera in Lancashire may be a factor in the expansion of the known range of some of these (e.g. *Tachystola acroxantha*), but the rest seem to be genuine range increases. The rate of expansion varies considerably amongst these species but informal comment suggests that many of them are also increasing elsewhere in the UK.

A striking feature of the last decade or so has been the large number of additions to the county list. The eleven year period shown below, in Table 3, has produced an average of 16 new species per vice county per year, the majority of these being microlepidoptera, involving mostly previously over-looked species. However about a quarter of the total, and nearly all the new macro-moths, have involved species expanding their range, sometimes very rapidly, on a national scale. Similar first-time records for quite a few of these species in Cheshire (south of Lancashire) indicate the expansion in range is genuine and rapid. In 2006, the figures were bolstered by a few migratory species reaching Lancashire for the first time.

The figures listed in Table 3 are more indicative of a dramatic increase in recording activity in the county than anything else. However when examined in more detail, as in Table 4, they can be seen to be hiding an unprecedented increase in the number and variety of species moving into Lancashire. The vast majority of these additions are also showing range expansions on a national scale. It has not

been possible to use similar time scales in tables three and four as data relating to those species new to one or other of the vice counties (as opposed to the county as a whole) prior to 1996 is incomplete.

Species such as *Lymantria monacha* (Black Arches) new in 2005 and *Eilema sorocula* (Orange Footman), new in 2007 so outside the scope of this article, may turn out to be one-off events rather than a trend to range expansion. Conversely, records of *Sphinx ligustri* (Privet Hawk-moth) in 2006 and *Apamea anceps* (Large Nutmeg) in 2005, both species with previous historic records, may represent the start of a renewed range expansion or population increase. For the future, *Idaea rusticata* (Least Carpet) must be a distinct possibility as a new species for Lancashire following its recent arrival and spread in Cheshire and plenty of a suitable foodplant in the north of VC60.

Since the late 1990s, there has been a marked increase in those interested in the moths of the region. Surprisingly, a significant proportion of the recruitment does not appear to have been from those traditionally interested in butterflies, but has come primarily from the bird-watching community. The formation of the Lancashire Moth Group in 1999 quickly tapped into this rich vein of established and budding interest with membership expanding rapidly. By mid-2007 there were well over 110 active moth recorders in the county, from the urban parts of Greater Manchester and North Merseyside to the moors east of Manchester and the limestone and wooded areas of north and north-east Lancashire. This large recording resource has allowed the two County Recorders to put together an unprecedented picture of the current moth distribution within the two vice counties covering Lancashire. The distribution map of *Noctua pronuba* (Large Yellow Underwing) at a tetrad level graphically shows the coverage that has been achieved in recent years, the majority of the records referring to the post-1995 period.

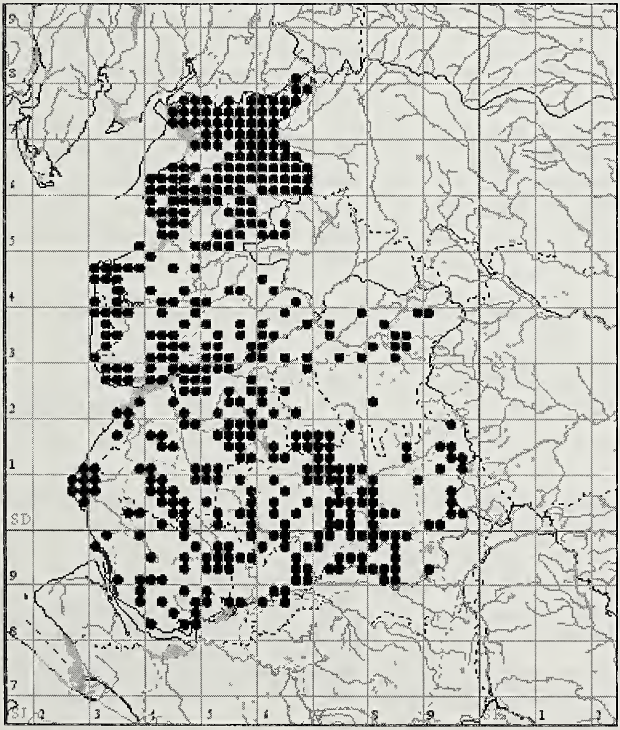


Table 2. Moths that are increasing in number, extending their range or both in Lancashire.

Species	**English name**	**Comment**
Nepticulidae		
Ectoedemia decentella		moving slowly north but probablyunder-recorded
Yponomeutidae		
Acrolepia autumnitella		locally common in VC59 and southern VC60
Oecophoridae		
Tachystola acroxantha		common in the Mersey basin, spreading northwards and westwards
Tortricidae		
Lobesia abscisana		common VC59, moving north in lowland/coastal areas
Enarmonia formosana	Cherry Bark Tortrix	patchy distribution
Pyralidae		
Myelois circumvoluta	Thistle Ermine	now common throughout
Euzophera pinguis		common in VC59, moving slowly northwards
Pterophoridae		
Amblyptilia acanthadactyla		frequently encountered in lowland areas
Drepanidae		
Watsonalla cultraria	Barred Hook-tip	significantly more records from a wider area from 2000 onwards. Formerly extremely local.
Geometridae		
Scopula imitaria	Small Blood-vein	very similar situation to *W. cultraria*
Deileptenia ribeata	Satin Beauty	very similar situation to *W. cultraria*
Lomographa bimaculata	White-pinion Spotted	expanding slowly outwards from two former centres of population in south VC59 and the far north of VC60
Sphingidae		
Mimas tiliae	Lime Hawk-moth	moving slowly northwards and infilling
Arctiidae		
Atolmis rubricollis	Red-necked Footman	more frequently encountered
Eilema depressa	Buff Footman	moving north through the county and also expanding from a previously local population in north VC60
Noctuidae		
Agrotis puta	Shuttle-shaped Dart	formerly locally common in the 1960s, has now become common over much of the county.
Catocala nupta	Red Underwing	a slow northward movement becoming relatively common throughout the county
Lygephila pastinum	Blackneck	dramatic spread in distribution north and west in last few years from a small and localised colony in south VC59

Table 3 Numbers of moth species added to the fauna for the two Lancashire Vice-counties, 1996 to 2006.

Year	Micros	Macros	Total
1996	1	0	1
1997	1	0	1
1998	15	1	16
1999	41	0	41
2000	16	1	17
2001	15	3	18
2002	21	1	22
2003	15	0	15
2004	13	3	16
2005	7	5	12
2006	19	1	20
1996 - 2006	164	15	179

Table 4. Moth species new to Lancashire, 1986 to 2006.

Species	Year of first record	Comments
Nepticulidae		
Stigmella speciosa	1999	spreading steadily northwards
Stigmella platani	2006	Locally common at two sites in south VC59
Tineidae		
Psychoides filicivora	2004	slight range expansion in 2005
Gracillariidae		
Caloptilia rufipennella	1994	now widespread and common
Caloptilia azaleella	1999	now common in VC59
Phyllonorycter leucographella	1999	now abundant throughout the county
Phyllonorycter strigulatella	1997	now widespread in south VC59
Phyllonorycter platanoidella	1999	now widespread throughout the county
Acrocercops brongniardella	2001	initially a slow expansion, but picking up in 2007
Yponomeutidae		
Argyresthia trifasciata	2000	now locally abundant
Blastobasidae		
Blastobasis lacticolella	1995	now widespread and common
Momphidae		
Mompha sturnipennella	2002	remains rather local, possibly over-looked
Tortricidae		
Cacoecimorpha pronubana	1987	remains local and uncommon in lowland areas
Epiphyas postvittana	1986	now the county's most common garden micro
Lozotaeniodes formosanus	1996	now locally common in the south; first noted in VC60 in 2003
Crocidosema plebejana	2005	subsequently from two other sites
Crambidae		
Calamotropha paludella	2004	subsequently from two other sites
Phlyctaenia perlucidalis	2002	regular at two sites, rare elsewhere
Duponchelia fovealis	1999	adventive species from three sites

Table 4. Continued.

Species	Year of first record	Comments
Pterophoridae		
Stenoptilia millieridactyla	2000	occasional at several garden sites
Geometridae		
Cyclophora linearia Clay Triple-lines	2001	subsequently at two other sites
Eupithecia intricata Freyer's Pug	1993	now widespread and common in gardens
Lymantriidae		
Lymantria monacha Black Arches	2005	A single record in mid VC59
Arctiidae		
Eilema griseola Dingy Footman	2004	spreading slowly northwards
Noctuidae		
Hecatera dysodea Small Ranunculus	2005	two records in extreme south-east
Polymixis flavicincta Large Ranunculus	2006	
Lithophane leautieri Blair's Shoulder-knot	1992	now widespread and abundant in gardens
Lespeyria flexula Beautiful Hook-tip	2001	subsequently two records in 2006
Parascotia fuliginaria Waved Black	1995	three to end of 1997, none subsequently

Regular light-trapping takes place over much of the county highlighting, amongst other things, the significant changes that are occurring to the life cycles of resident species. Species such as *Acasis viretata* (Yellow-barred Brindle), *Campaea margaritata* (Light Emerald), *Ourapteryx sambucaria* (Swallow-tailed Moth) and *Hypena proboscidalis* (Snout) are now having regular and in some cases strong second broods whereas twenty years ago these events were quite unusual.

Another advantage of having such a wide distribution of recorders is the ability to track and monitor migratory activity with a greater accuracy than before. In the past it seemed most migration took place in the coastal areas of the county, presumably as this was where a large proportion of the light traps were operated in the autumn. 2006 changed that. This exceptional year, which produced two species new to Lancashire, several second or third county records and an eighteen-fold increase in the number of *Helicoverpa armigera* (Scarce Bordered Straw) records, allowed the county recorder to demonstrate that migration was actually taking place over a wide front on this occasion. Many of the reports of *Erois occulta* (Great Brocade) in 2006 came from recorders situated well inland, corresponding with the easterly origin of this species. The extent of this arrival would probably have been less well documented in the past. Moth recording is at an all time high in Lancashire and the establishment of the "Moths Count" scheme, including the National Moth Recording Scheme, will no doubt generate even more interest. Moths can only benefit from this and the value of the extra data will aid the future conservation of all species.

I would like to thank Dr Mark Young and Colin Plant for their helpful comments on earlier drafts of this article. The distribution map was generated using MapMate software.— STEPHEN PALMER, 137 Lightfoot Lane, Fulwood, Preston Lancs PR4 0AH (E-mail: s.palmer12@btopenworld.com).

Hazards of butterfly collecting: Revisiting Boabeng-Fiema – Ghana 2007

Readers of this column will know that I am occasionally willing to stretch the term "hazard" a bit. But surely any experience that shatters deeply held preconceptions might be considered a mental health hazard? Be that as it may, I was destined for a very pleasant surprise when I re-visited the Boabeng-Fiema Monkey Sanctuary in central Ghana in April 2007 after an absence of 12 years.

I first went to Boabeng-Fiema in 1993 as part of a multidisciplinary team that was to report on the status and needs of the protected areas system in Ghana. It is a tiny patch of semi-deciduous forest (the driest version of what may legitimately be called rainforest) covering about 1.3 km^2. The forest was isolated from the nearest major forest area by 50 km of large tracts of farmbush and even more sterile derived Guinea savannah. The mature trees were in good condition and no recent logging of any kind had taken place. The under-storey, however, had been badly disrupted by cutting of firewood and by the presence of large numbers of goats. The network of major paths was so extensive that some were no more than ten metres apart. Here and there small agricultural plots could be seen. The forest is the northernmost remaining rainforest in Ghana, just where the forest/savannah transition zone begins. It owes its survival to the fact that the two villages of Boabeng and Fiema have monkeys as their totem animals. They are central to the myths concerning the founding of the villages more than 100 years ago: monkeys gathered at a water source indicated to the wandering people that they could settle here. Two species are involved: the huge black-and-white colobus (*Colobus vellerosus*) and the small mona monkey (*Cercopithecus mona campbelli*). When clear-felling began a hundred years ago the villagers realized that without the forest their monkeys would go extinct. The two villages, which did not always see eye-to-eye, agreed not to log or abuse the forest that now stands. When all neighbouring forests fell to the chainsaws, they agreed to invite the Ghana Wildlife Department to become co-managers and act as arbiters in any disputes on forest use. That was why our team was in this tiny forest.

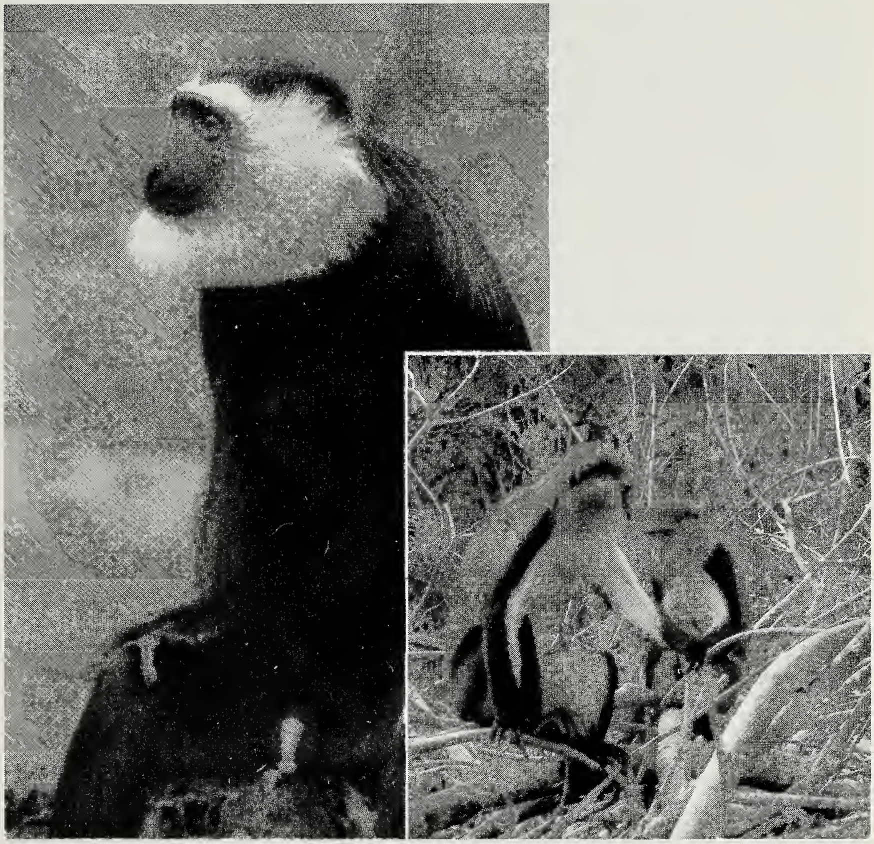
Two days of prospecting in indifferent weather yielded a total of 135 species of butterfly, not bad for a small forest at the margins of the main forest zone. Nearly all were forest butterflies and ubiquitous species: the intact canopy almost excluded the savannah species found in the immediate neighbourhood. These numbers were a bit of a surprise and I decided to pay occasional visits at other times of the year. During 1994 and 1995 I made an additional four short trips: two or three days allow you to traverse practically every path in the forest several times. The first visit was during a bad dry spell and yielded only 83 species, of which just 20 were new to the forest. On the three next occasions the totals were nearly 150 and gradually brought the grand total to 257 (during 49 cumulative collecting hours). Since a large forest in this area – and such no longer exists – would have had a total butterfly fauna of some 500 species this was a very respectable total. But the "species acquisition curve" and various statistical calculations indicated that at least 350 species should be present. The next few

years were largely devoted to Nigeria and Korup National Park in Cameroun, and then the major National Parks in Ghana became a priority. No follow-up in Boabeng-Fiema was possible.

Following the publication of my book *Butterflies of West Africa* in 2005 I decided that Boabeng-Fiema needed follow-up. Fortunately, my two energetic colleagues, Szabolcs Sáfián and Kwaku Aduse-Poku, were able to go there in October 2006 for two days of collecting under the best possible conditions. Between them they collected some 180 species, of which 31 were new to Boabeng, bringing the documented total to 288 species. Three independent estimation methods more or less agreed that the total butterfly fauna was 375 species or so. Studies in other forests in Ghana indicated that the total in a forest like Boabeng would have been about 500 when part of a larger forest system: good forests further south in Ghana have 600-650 species, but many of these are dependent on the higher rainfall and the relative shortness of the dry season. So despite being a tiny and isolated forest fragment, Boabeng-Fiema seems to have retained more than three-quarters of its original butterfly fauna, which we find quite amazing. Forest fragments always have a depauperate fauna: flora and bird studies reveal a much larger proportionate loss of species. We decided to document our observations in a detailed scientific paper.

I was back in Ghana in April 2007, having invited my sister and a mutual friend, both decidedly non-entomological in daily life. Why not accompany them to Boabeng? I was preparing a paper on the forest and had not personally been there since 1995. Off we went, and that was when my shocks began. We planned to stay in a concrete guest-house that had been built back in 1994 with a grant from the European Union. I had camped on the veranda in 1995: the unused rooms were too full of wasps and bees. No more. In recent years the two villages had agreed to invest in the place and hired a married couple as caretakers and cooks. They were both delightful people. Ghana's notoriously erratic electricity grid had arrived, but the old solar powered system had been retained as back-up. The gardens had been beautifully landscaped by some Peace Corps workers. Dinner was great. The visitors' register showed a healthy occupancy rate. Boabeng-Fiema has become part of Ghana's ecotourism circuit. That was shock number one.

The second shock came the next morning. The forest was in much better condition than in 1995. The network of paths had been pared down, only naturally fallen firewood was gathered, domestic animals excluded, and the ban on agriculture enforced. The understory had fully recovered. Visiting an African forest after an absence of twelve years and finding it in improved condition is a very unusual experience. Ecotourism is now more profitable than firewood and browsing livestock. The tall forest was conserved since the monkeys needed it: previously the villagers just wanted to conserve the monkeys and were not conservationists as such. Ecotourism has made them conservationists. The monkeys are also doing fine. There are at least 230 colobus in 15 troops and many more Mona monkeys. It may be the highest density of both species anywhere in Africa – and they are even tamer than when I was last there.



Guardians of the Boabeng-Fiema butterflies: the huge black-and-white colobus, with a less-than penis (left) and the mona monkey (right)

Boabeng-Fiema is not unique. The formally protected Wli Falls/Agumatsa Wildlife Sanctuary, almost as small as Boabeng with a beautiful waterfall, has become a major tourist attraction. The village now has three small hotels built during the past ten years that provide paid work for people in an area where once only seasonal agricultural work was available. Many villagers now work as part-time tourist guides. Poaching and encroachment is down.

Ecotourism is no panacea for conservation. But when managed in a sensible and sensitive manner, it may play an unexpectedly positive role

— Torben B. Larsen, Jacobys alle 2, 1806 Frederiksberg, Denmark.
(E-mail: torbenlarsen@compuserve.com).

The Small Chocolate-tip *Clostera pigra* (Hufn.) (Lep.: Notodontidae) in Kent

Stephens first recorded *Clostera pigra* in Kent in 1828, at Darenth Wood in the far north-west of the county (Chalmers-Hunt, J. M. 1968. *The Butterflies and Moths of Kent.* 2). Historically, the species was widespread in Kent and could be found at many localities. Recently though, as with many of our once-common native species, its abundance has dropped (with never more than five per year recorded – Ian Ferguson, pers. comm.) and its distribution has declined. The stronghold of *C. pigra* in Kent now appears to be situated in the south of the county, with most recent records coming from the Warehorne area. Indications of this are given by Rothamsted Insect Survey light trap records: on 21 April 1971 and 27 May 1973 single specimens were collected from Tenterden (site 174: TQ 834366); between 1989 and 1999, ten individuals were recorded from Warehorne (site 478: TQ 988346); and on the night of 15 July 1995 a singleton came to the trap at Hamstreet (site 472: TR 004334). The most recent record from this part of the county was from Birchett Wood (about two miles north of Warehorne) on the 5 July 2003 (James McHill).

Away from this southern stronghold there have only been five records since 1973. The first was from Bedgebury (now the National) Pinetum near Stonecrouch in the south west of the county, recorded by D. Dey on 17 July 1973. This was possibly from a resident population but since none have been recorded in this part of the county for many years it is probable that it has died out here (Ian Ferguson, pers. com.). A singleton found at Dungeness Bird Observatory by Dave Walker on 4 August 1994 was almost certainly a migrant, as even though one of the foodplants (Aspen, *Populus tremula* L.) occurs here, the area is so well studied that it seems unlikely that a local population has been over-looked. Mark Love reported a specimen from Trottiscliffe in north east Kent on 16 July 1999, but the record is unconfirmed and doubtful due to the habitat in which it was found – chalk downland, as opposed to the favoured damp habitats such as marshes and moorland.

The two most recent records suggest the possibility of an as yet undiscovered colony in the north east of the county. In August 2004 Tim Baldwin caught a singleton in his garden light trap in Old Wives Lees (TR 073547). This record was originally considered erroneous due to its location but the most recent specimen, found less than two miles away, suggests that there may be a population from which both moths originated. The latest record was from the Rothamsted Insect Survey light trap at Perry Wood (site 451: TR 046562), caught on the night of 27 July 2006.

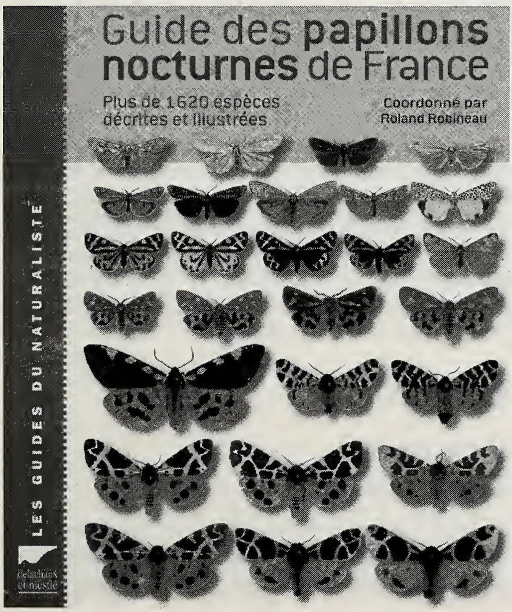
Many thanks to Ian Ferguson, the Kent Macrolepidoptera Recorder, for all of his information and comments regarding past records; and to John Badmin for his unfailing hard work operating the Perry Wood light trap and identifying the catches.— PHILIP J. L. GOULD, Co-ordinator of the Rothamsted Insect Survey Light-trap Network, Plant & Invertebrate Ecology Department, Rothamsted Research, Harpenden, Hertfordshire AL5 2JQ (E-mail: phil.gould@bbsrc.ac.uk).

Calophasia lunula **Hufn. (Lep.: Noctuidae) in north-west Kent in 2007**

On 3 June 2007 a female *Calophasia lunula* was noted at my garden mv light at Dartford, West Kent. Its known larval foodplants are scarce or absent in the immediate vicinity, but *Linaria vulgaris* in scattered roadside patches and in fields is not uncommon on the Dartford marshes and their eastward extension at Stone where in 1952 and 1956 several larvae were found. A specimen noted at Pinden in 1953 at mv light appears to complete its known occurrence in north-west Kent until the the addition over fifty years later of this Dartford sighting. For West Kent (vice-county 16), the addition of several larvae found at Tonbridge in 1954, also on *L. vulgaris*, emphasises the period of long absence of records. This is in contrast with East Kent where, from Dungeness, other colonies have been established along the coast in both directions; the Dartford specimen may be a vagrant from there.— B. K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

BOOK REVIEW

Guide des papillons nocturne de France edited by **Roland Robineau**. 288 pp., including 55 full page colour plates of adult moths. 255 × 215 mm, hardbound. ISBN: 978-2-603-01429-5. Published by Delachaux & Niestlé, Paris in the series "Les Guides Entomologique", 2007. €35 (plus postage). In French.



For years, many British lepidopterists have been put off collecting or studying moths in France because, amongst other reasons, the books did not exist for satisfactory recognition of the species. Although there is a fairly recent checklist of all French Lepidoptera (Leraut, 1997. *Liste Systématique et Synonymique des Lépidoptères de France, Belgique et Corse*), there has been no comprehensive coverage of the larger moths since the four volume work by Jules Culot (1909 – 1913. Noctuelles et Géomètres d'Europe); a 1986 reprint of this latter work by Apollo was of minimal practical value since, as a direct facsimile of the original, it made no attempt to update the century-old names nor to correct any errors. Meanwhile, here in Britain an equally ancient tome,

in the form of 'South' persisted for many years as the only work of value until, in 1984, Bernard Skinner did us all the very great service of producing his *Colour identification guide to the moths of the British Isles* – known to all and sundry as 'Skinner'. Even though the use of this book, in its 1998 revision, has received some recent competition from messrs. Paul Waring and Martin Townsend (*Field Guide to Moths of Great Britain and Ireland* – known to all as 'T & W'), it remains the most important British macro-moth identification guide to date. In the *Guide des papillons nocturne de France* we now have what is already being referred to as 'The French Skinner' – and I confidently predict that the popular recording of French macro moths is about to take off as a result.

The work is the product of the combined efforts of seven people, acknowledged on the reverse of the title page, combined by Roland Robineau into a coherent whole. The format is more or less exactly the same as 'Skinner' with species text at the front and the full-page colour plates depicting all 1619 French macro moths as "set" specimens (thus also showing hind wings) reproduced at life size. The species accounts make occasional use of line drawings to indicate important identification features. A checklist of species in the early pages of the book is numbered from 1 to 1619 with the Leraut checklist numbers and those in the European Checklist (Karsholt & Razowski, 1996. *The Lepidoptera of Europe – a distributional checklist*) in parentheses after each entry. The colour photographs and their captions as well as the species texts each bear the same identifying number so that cross-referencing page numbers becomes unnecessary (though Plate numbers are given alongside the text). Nomenclatural changes made since the publication of the Leraut checklist, as well as additional species since then, are summarised so that cross-referencing between the two works is practical. In the review copy, the colour reproduction is of a high standard.

This book is surely destined to become *the* standard identification guide for French macros and it already makes the recently published first volume of Patrice Leraut's *Moths of Europe* (NAP Editions) largely redundant – although the latter does contain some useful features lacking in the present work – in particular some genitalia drawings. Indeed, my only significant criticism is that this new book seems to completely ignore the need for genitalia examination of critical species. For example, under the entry for *Oligia strigilis* (Marbled Minor – or should I say *La Ciselée* for those who think we still need English names), it simply states 'Très proche de *O. versicolor* et d'*O. latruncula*: leur séparation est délicate' (very similar to *O. versicolor* and *O. latruncula*: their separation is difficult) and the value of genital structure as the final arbiter is not mentioned at all. No doubt, however, there will be future revisions when these details can be dealt with; in the meantime this book is, in my opinion, absolutely essential for those interested in the French fauna. It is also likely to prove the single most useful book for facilitating identification of the increasing number of 'new to Britain' macro moths reaching our shores and at a mere 35 Euros (about £25) it also has to be pretty much the best value moth book on the market at the moment! Time to write that letter to Santa!

Colin W. Plant

CORRIGENDUM

The Editor is in receipt of the following correction to the present volume:

Through an unfortunate oversight, Tim Freed was not credited as the artist who executed the superb drawing of the male genitalia of *Bucculatrix ulmifoliae* on page 198 of this current issue. The authors of the paper offers their profuse apologies for this omission.

– WANTED –

A FUND-RAISER FOR THIS JOURNAL

We are looking for someone to help raise funds for the continued publication and improvement of this journal so that we do not have to raise the subscription rate and so that we can both increase the page length and insert colour plates in every issue. Ideally, we wish to reduce the subscription rate so that the journal becomes more affordable to a wider readership. We envisage the Fund Raiser investigating all available funding possibilities, from grant-aid and sponsorship to advertising and encouraging bequests. He/she will also investigate the possibility and benefits of the journal becoming a Registered Charity and progress an application if we deem it appropriate. He/she will act independently, leaving no stone unturned, but will liaise on a regular basis with both the Treasurer and the Editor. He/she will be expected to write letters and talk to people at all social levels. Instant access to e-mail, the Internet and a telephone is essential. The role will be, like all the others associated with this journal, entirely voluntary; justifiable expenses will be paid from monies raised. Interested parties should please contact the Editor in the first instance – preferably by telephone.

We have not increased the subscription for 2008, but in order to keep the cost low it is unlikely that any colour plates can be inserted into the 2008 volume unless paid for by the authors.

Please note that for unavoidable reasons the arrival on your doorstep of the January 2008 issue of this journal may be delayed until early February.

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Book Review

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